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ANALYSIS OF AGRICULTURAL POLICIES IN JAMAICA

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ABSTRACT

The Government of Jamaica places agricultural development among its priorities and employs domestic policy measures and border protection to support agriculture. This report provides a qualitative analysis of the alignment of agricultural policy programs in Jamaica with the goals and existing challenges of the sector, supplementing it with a quantitative evaluation of agricultural support. The analysis finds that agricultural policy uses a limited number of instruments and concentrates on only a few subsectors. A comparison of the trends in agricultural support demonstrates that Jamaica's share of gross farm receipts originating from agricultural policy (34.9% in 2012-14) was higher than in most LAC countries. The share of support to general services in total support was among the lowest regionally (8.2%).

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the Inter-American Development Bank PSE Study.

LIST OF ABBREVIATIONS

ABC | Agri-Business Council

AC | All Commodities

ACP | African, Caribbean and Pacific Group of States

AIC | Agro- Investment Corporation

ASD | Additional Stamp Duty

CARICOM | Caribbean Community and Common Market

BOJ | Bank of Jamaica

BT | Budget Transfer

CDB | Caribbean Development Bank

CET | Common External Tariff

CEF | Cane Expansion Fund

CGA | Citrus Growers Association

CIB | Coffee Industry Board

CPA | Caribbean Poultry Association

CSE | Consumer Support Estimate

CUF | Customs User Fee

DBJ | Development Bank of Jamaica

EL | Environmental Levy

EPA | Economic Partnership Agreement

ERP | Effective Rate of Protection

ESSJ | Economic and Social Survey Jamaica

ETC | Employment Tax Credit

FTA | Free Trade Agreement

GCT | General Consumption Tax

GDP | Gross Domestic Product

GOJ | Government of Jamaica

GSSE | General Services Support Estimate

JAS | Jamaica Agricultural Society

JCFA | Jamaica Cocoa Farmers' Association

JDDB | Jamaica Dairy Development Board

MOAF | Ministry of Agriculture and Fisheries of Jamaica

MOFPS | Ministry of Finance and the Public Service

MPS | Market Price Support

MTF | Medium Term Socio- Economic Policy Framework

NES | National Export Strategy

NLA | National Land Agency

NRP | Nominal Rate of Protection

ODA | Official Development Aid

OECD | Organization for Economic Cooperation and Development

PIOJ | Planning Institute of Jamaica

PIR | Productive Input Relief

PSE | Producer Support Estimate

RADA | Rural Agricultural Development Authority

SCF | Standard Compliance Fee

SCT | Single Commodity Transfer

SD | Stamp Duty

STATIN | Statistical Institute of Jamaica

STU | Sugar Transformation Unit

TAJ | Tax Administration Jamaica

TSE | Total Support Estimate

USAID | United States Agency for International Aid

USDA | United States Department of Agriculture

WCC | Wallenford Coffee Company

WDI | World Development Indicators

WEF | World Economic Forum

WTO | World Trade Organization

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INTRODUCTION

Agriculture's weight in Jamaica's GDP is moderate, but since 18% of the active population is employed in agriculture and 46% of the total population lives in rural areas, it is an important contributor to the country's economic development. Agriculture is recognized as a priority in the Government's mid-term policy plans. This report presents a quantitative approach to agricultural policy evaluation by applying the producer support estimate (PSE) methodology for measuring the level of agricultural support in Jamaica.

This report provides an update to an analysis previously published by FAO (FAO, 2013) and presented in the IDB Agrimonitor database. Because it covers the time period between the years 2006-2014, some of the most recent policy changes may not be reflected in the results. An earlier World Bank study also used PSE methodology to analyze Jamaica's agricultural sector (World Bank, 2013). This report is complementary to the publication "Agricultural Policy and Greenhouse Gas Emissions in Jamaica" (IDB, 2017).

The first chapter of this report provides a brief overview of agricultural policy, both domestic and international, with the focus on the coordination between the policy goals declared by the government and actions taken to support the sector. A brief description of the value chains for selected commodities is presented as part of the PSE estimates as an additional demonstration of the cost and benefit distribution along those value chains. This analysis also helps to clarify the situation in cases where policy indicators might be reflecting non-policy related characteristics of the value chain.

The second chapter presents the results of the estimates and international comparisons, showing how the level and structure of agricultural support in Jamaica compares to the other countries in the region.

The report concludes with recommendations for policy enhancement based on insights provided by its quantitative analysis.

AGRICULTURE'S WEIGHT IN JAMAICA'S GDP IS MODERATE, BUT SINCE 18% OF THE ACTIVE POPULATION IS EMPLOYED IN AGRICULTURE AND 46% OF THE TOTAL POPULATION LIVES IN RURAL AREAS, IT IS AN IMPORTANT CONTRIBUTOR TO THE COUNTRY'S ECONOMIC DEVELOPMENT.

1. OVERVIEW OF AGRICULTURAL POLICY

1.1. AGRICULTURE'S ROLE IN THE ECONOMY OF JAMAICA

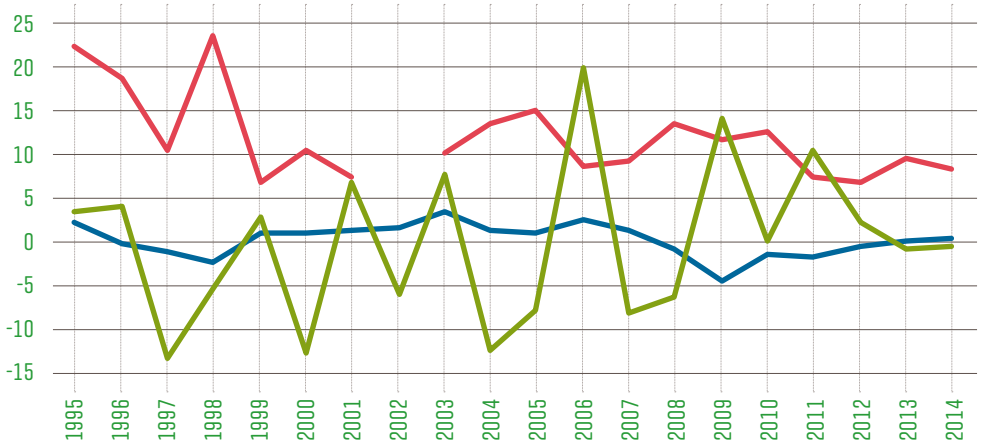
AGRICULTURE IS AN IMPORTANT PLAYER IN THE ECONOMY

Over the past several years, Jamaica's economy has stagnated, with GDP growth of only 0.7% in 2014. The inflation rate remains relatively high (8.3% in 2014) and the depreciation of the Jamaican dollar continues ($85.86 in 2010 to $114.66 in 2014)[1]. Limited growth rates can be explained by the government's efforts to address fiscal issues, efforts that succeeded in achieving a fiscal surplus in 2013/2014. The contribution of agriculture to the GDP of Jamaica has been moderate and stable during the past 5 years, and its share of GDP was 6.6% in 2014.

[1] Source: BOJ.

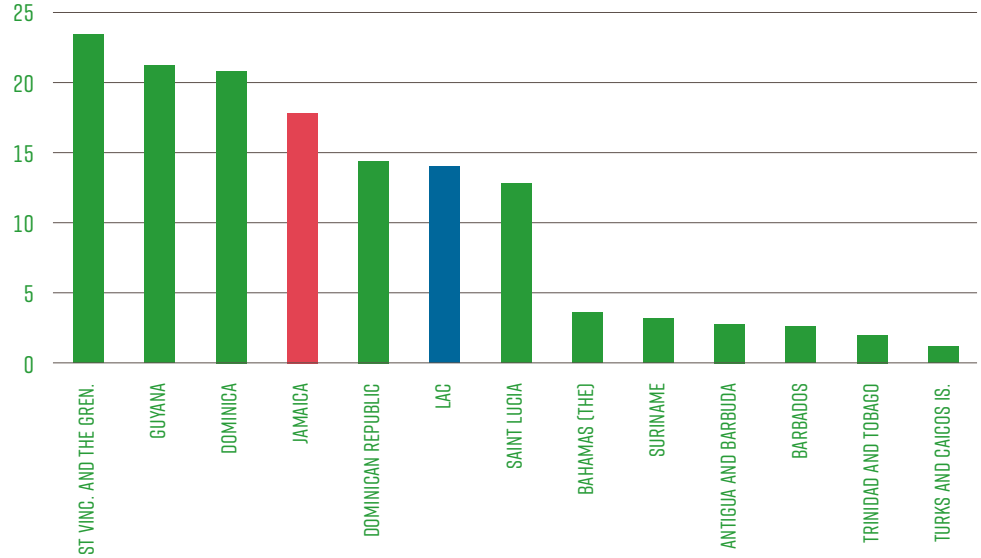
Agriculture does affect Jamaica's overall economic development, so the adverse effects of climate events on agriculture have tempered GDP growth recovery. These include, for example, severe droughts and dry conditions in 2014 that caused a 0.5% drop in agricultural value added (Figure 1). Agriculture is an important source of income for the rural population: Its share of total employment is a little under 20% (Table 1), which is higher than the regional average (Figure 2).

FIGURE 1: GDP AND AGRICULTURAL VALUE ADDED YEAR-TO-YEAR CHANGES AND INFLATION RATE IN JAMAICA (%)



Source: Planning Institute of Jamaica, 2015.

FIGURE 2: SHARE OF AGRICULTURE IN TOTAL EMPLOYMENT (2013*)



* GUY–2002, VCT, TCA–2008, DOM, TTO–2014, DMA–2001, LCA–2006, BHS–2011.

Source: World Bank Data Bank, Central Statistical Office Trinidad and Tobago.

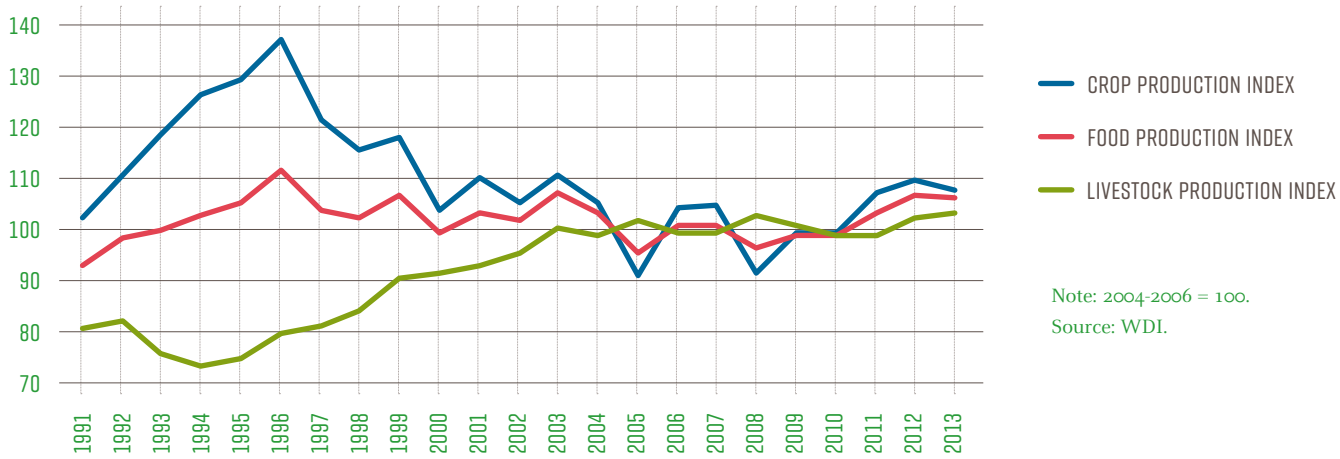
TABLE 1: SELECTED MACROECONOMIC INDICATORS, JAMAICA				
INDICATOR	UNIT	1995	2010	2014
GDP (CONSTANT 2007 PRICES)	$ BN	N.A.	828.028	847.166
GDP GROWTH	%	2.35	- 1.50	0.40
GDP PER CAPITA (CONSTANT PRICES)	$'000	N.A.	269.10	270.00
POPULATION	'000 PERSONS	2,480.00	2,695.50	2,723.00
% POPULATION IN URBAN AREAS	%	50.62	52.00	54.00
SHARE OF AGRICULTURE IN GDP	%	9.00	6.60	6.60
SHARE OF AGRICULTURE IN EMPLOYMENT	%	23.20	18.00	18.00
FOOD EXPORTS (% OF MERCHANDISE EXPORTS)	%	23**	15.00	20.00
FOOD IMPORTS (% OF MERCHANDISE IMPORTS)	%		15.00	16.00
AGRI-FOOD TRADE BALANCE	US$000	N.A.	-250,326.62	-219,114.59
TRADE (% OF GDP)	% OF GDP	111.30	80.86	63.1
AGRICULTURAL LAND	SQ. KM	4,970.00	4,440.00	4,440.00
SHARE OF ARABLE LAND	% OF LAND AREA	14.59	11.08	11.08
SHARE OF IRRIGATED LAND	% OF AGRIC. LAND	N.A.	6.91	N.A.

Source: STATIN, PIOJ, WDI, BOJ.

POULTRY SUBSECTOR IS STRONG AND GROWING, CROP PRODUCTION IS VULNERABLE BUT HAS POTENTIAL

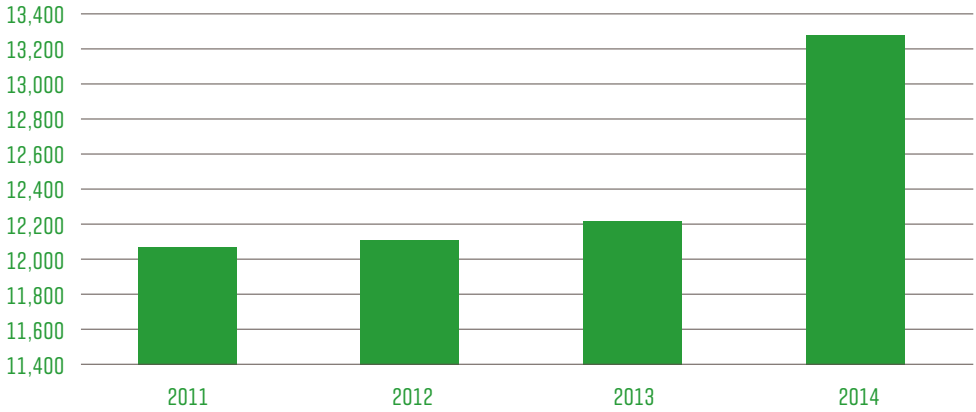
While on average, since 1995, crop and food production have stagnated, some subsectors saw impressive growth rates. The government's efforts to support non-traditional crops have resulted in production growth in those subsectors. Yam and sweet potato production increased recently. The recent growth trend in the livestock sub-sector mostly reflects growth in poultry production, which increased 9% in 2014 (Figure 4).

FIGURE 3: CROP AND LIVESTOCK PRODUCTION INDICES FOR JAMAICA



Note: 2004-2006 = 100.
Source: WDI.

FIGURE 4: VALUE OF POULTRY PRODUCTION IN JAMAICA (J$ MILLION). CONSTANT 2006 PRICES

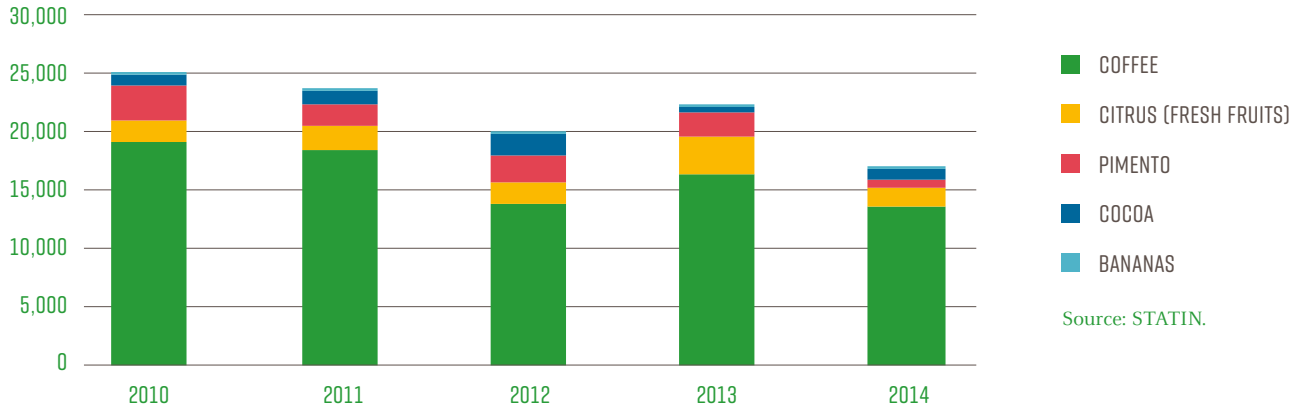


Source: Calculated based on MOAF data and information from the interviews with market players.

THE ROLE OF TRADITIONAL EXPORTS DECLINED

Agri-food products represent 20% of total merchandise export earnings, (which is slightly lower than the average in LAC countries, 23%), and 16% of the total merchandise import bill. Jamaica's major export earnings come from bauxite/alumina, while its main non-merchandise sources of foreign currency are tourism and remittances. Jamaica is a net importer of livestock commodities (dairy and meat products).

FIGURE 5: AGRICULTURAL EXPORTS OF TRADITIONAL CROPS IN JAMAICA (000 USD)



Source: STATIN.

NON-TRADITIONAL EXPORT EXPANSION IS AMONG THE POLICY GOALS

Traditional agricultural exports, especially coffee and citrus, are in decline, and the government is making efforts to promote non-traditional export commodities[2] such as yams, papaya, Jamaican ackee, sweet potatoes, and marine products. Export earnings from non-traditional exports increased by 8% between 2008 and 2012.

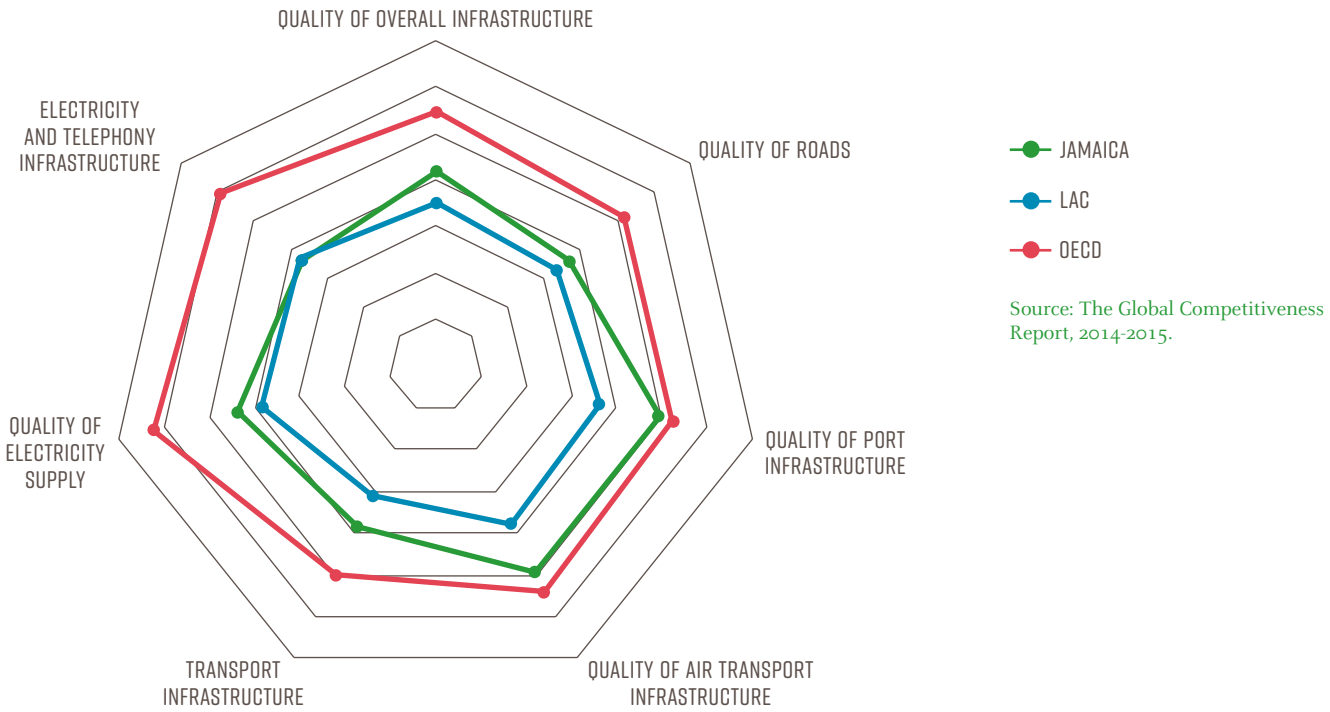
[2] GOJ provides training in international business practices to farmers, organizes promotional fairs and trade missions, strengthens value chains through Agro Park development, and provides assistance for compliance with international standards.

COMPETITIVENESS IS ONE OF THE POLICY PRIORITIES, BUT THERE ARE SETBACKS

Jamaica ranks 86th out of 144 countries in the global competitiveness index, and its ranking has dropped over the last 4 years. Overall infrastructure development index is estimated at 4.2[3] by the WEF Global Competitiveness Report, where Jamaica ranks 70th out of 144 countries, outperforming LAC's average (Figure 6). Underdeveloped infrastructure may explain part of the distortions revealed by the PSE estimations in section 2.3.

Jamaica ranks 58th in the World Bank's Doing Business Report, which is the best result among the Caribbean island countries. However, its rank is 146th out of 189 economies[4] on the ease of trading across borders (costs, timing, and procedures for exports and imports), with a DTF[5] of 51, the second lowest (poorest performance) among LAC countries (Figure 7).

FIGURE 6: INFRASTRUCTURE DEVELOPMENT INDEX



Source: The Global Competitiveness Report, 2014-2015.

[3] On a scale of 1 to 7, 7 being most developed.

[4] Down from the 115th place in 2014's rating.

[5] DTF: The distance to frontier score is an estimate of the level of regulatory performance of the country/region on a scale of 0 to 100, where 0 represents the lowest performance and 100 represents the "frontier" – the best performance (World Bank, 2014).

Infrastructure development and the cost of cross-border trade are important factors for agricultural development. Underdeveloped infrastructure leads to additional logistical costs, which affect price transmission in agricultural trade. This leads to additional protection for import-competing subsectors and penalties for exporters.

Source: World Bank, 2016.

FIGURE 7: COSTS OF TRADE (US$) AND DTF VALUE (RIGHT AXIS)

1.2. CHALLENGES FACING THE AGRICULTURAL SECTOR

CLIMATE CHANGE AFFECTS PERFORMANCE

Extreme weather events cause major losses for Jamaican agriculture, which has been severely affected by hurricanes Ivan, Dennis, and Emily (2004-2005), Dean (2007), Sandy (2012), tropical storms Gustav (2008) and Nicole (2010), as well as droughts (2005, 2014) and floods (2009).

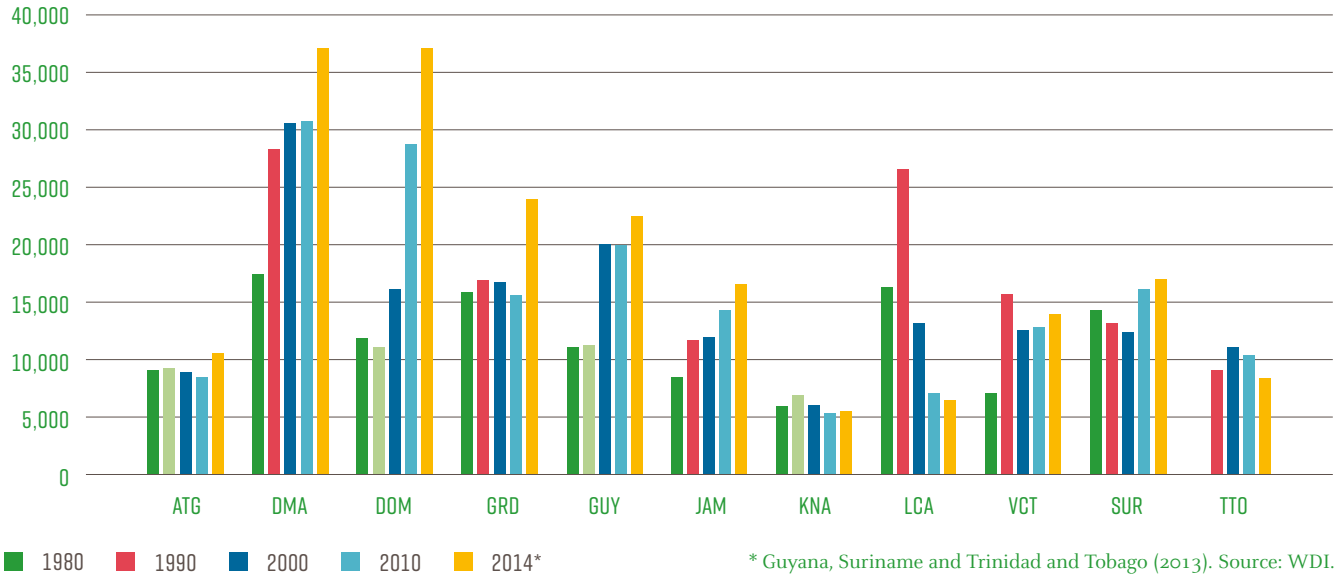
VULNERABILITY TO WORLD INPUT PRICE SHOCKS

Key inputs, such as fertilizers, feed and fuel, are imported. Increasing price volatility on world markets for these inputs contributes to the high risk of domestic agricultural activities.

PRODUCTIVITY REMAINS LOW, BUT IS IMPROVING

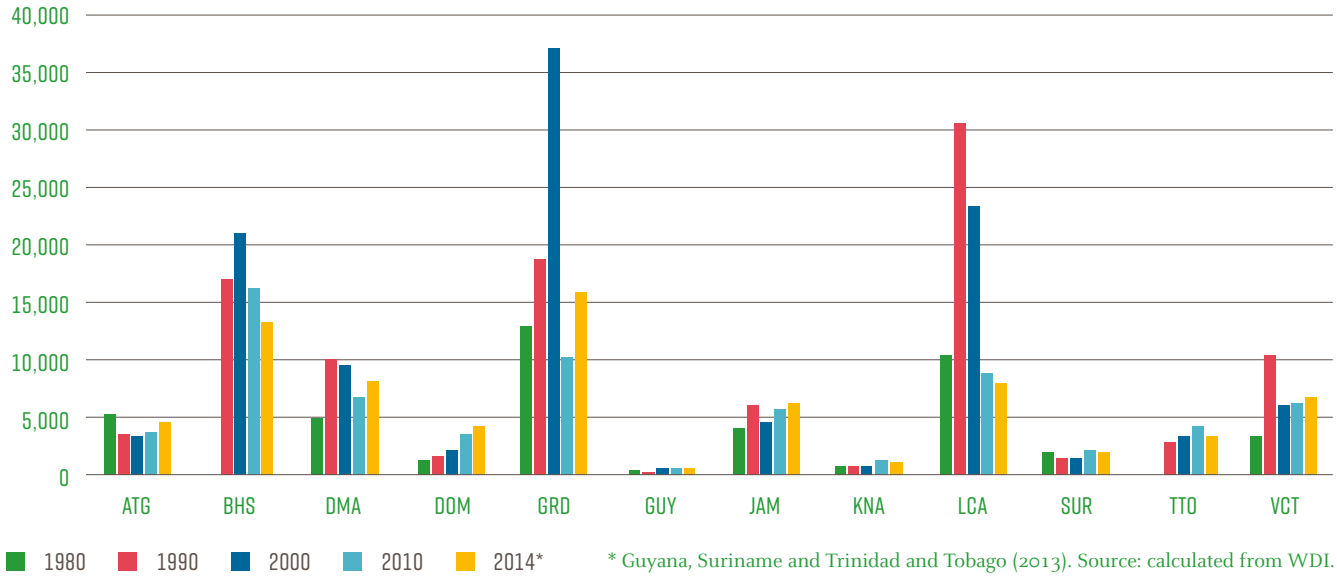
Although agriculture represents a large share in total employment, labor productivity in agriculture is rather low compared to other Caribbean countries. At the same time, it increased almost 1.5 times since 2000. Land productivity is also low, and one of the reasons for that is the deficiency of irrigation infrastructure. Over the last decade, farmers have been facing challenges from droughts, and the existing reservoir capacity is not sufficient to mitigate their effects, resulting in low crop productivity.

FIGURE 8: AGRICULTURE VALUE ADDED PER WORKER FOR SELECTED COUNTRIES OF THE CARIBBEAN REGION (CONSTANT 2005 US$)



* Guyana, Suriname and Trinidad and Tobago (2013). Source: WDI.

FIGURE 9: AGRICULTURE VALUE ADDED PER 1 HECTARE OF ARABLE LAND FOR SELECTED COUNTRIES OF THE CARIBBEAN REGION (CONSTANT 2005 US$)



* Guyana, Suriname and Trinidad and Tobago (2013). Source: calculated from WDI.

1.3. STRATEGIC OBJECTIVES OF AGRICULTURAL POLICY, MAIN DOCUMENTS, IMPLEMENTING INSTITUTIONS

GOVERNMENT RECOGNIZES AGRICULTURE AS ONE OF THE PRIORITIES

The policy goals for agriculture are set in the long-term (Vision 2030 Jamaica – National Development Plan) and mid-term (4-year Socio-Economic Policy Framework) documents (for 2012-2015 and 2015-2018).

Specific goals for agriculture are described in a sectoral plan in the framework of the Vision 2030's Ministry of Agriculture and Fisheries (MOAF) goals, in its mid-term plan for 2015-2018. Annual priorities and actions of the MOAF are set out in its yearly Operation Plan.

The only measurable indicator of agricultural development in the MTF is the agricultural production index, and for rural development, poverty levels in rural areas. Both indicators missed the targets, and the poverty rate even worsened compared to the 2007 base year, according to the 2014 review.[6]

The MOAF's goals in its mid-term plan for 2015-2018 are:

- Sustainable agriculture in the face of climate change.
- Development of a modern and internationally competitive sector.
- Promotion of food security and safety (use of best practices, international standards)

The National Export Strategy (NES) of 2009 also sets export expansion as a priority, but only lists agri-processing, aquaculture, and coffee as priority sectors.

[6] Poverty rate in rural areas was 21.3% in 2012, v.s. 15.3% in 2007.

IMPLEMENTING INSTITUTIONS ARE MAINLY THE MOAF AND SUBSIDIARIES

The Ministry of Agriculture and Fisheries (MOAF)[7] has direct responsibility for the administration of public sector programs and projects of Jamaica's agriculture, forestry and fisheries sectors.

Currently, the MOAF is implementing a reform of the Commodity Boards, with the goal of merging the coffee and cocoa boards, part of the coconut industry board, and the export division into a single agency by the end of 2016. This reform was initiated after an internal Ministry study in 2009 found that the commodity boards' marketing activities were inefficient.

RADA plays a key role in implementing agricultural policy in Jamaica. It provides technical advice to farmers, agricultural marketing information, training and counselling services, and collects data on supply and demand in particular markets. It also disburses significant budget funds for projects in rural areas. The beneficiaries of these projects can receive grants in the form of inputs (fertilizers, seeds, seedlings, etc). RADA provides consultations on marketing strategies and facilitates marketing co-ops/groups.

BOX 1: INSTITUTIONAL STRUCTURE OF THE SECTOR'S GOVERNANCE

The MOAF is administratively responsible for several commodity boards, agencies, and statutory bodies, which are funded through the agriculture budget:

- The Agricultural Credit Board
- The Agricultural Investment Corporation (AIC)
- The Botanical Gardens
- The Commodity Boards (Banana, Coffee, Coconut Industry Boards, Tobacco Industry Control Authority)
- Jamaica Citrus Protection Agency
- Jamaica Dairy Development Board
- The Jamaica 4H Club
- The Jamaica Agricultural Society (JAS)
- The National Irrigation Commission (NIC)
- The Rural Agricultural Development Authority (RADA)
- The Sugar Corporation of Jamaica
- The Sugar Industry Authority
- The Export Division
- The Veterinary Board

The Planning Institute of Jamaica (PIOJ) is responsible for initiating and coordinating the development of policies, plans and programs; undertaking research and advising the GOJ; and managing external cooperation agreements and projects. Under the PIOJ structure there is a special division for rural development.

The National Land Agency (NLA)'s functions include land titles, surveys and mapping, land valuation, and estate (crown land) management. Between 2012 and 2016, NLA operated under the Ministry of Water, Land, Environment, and Climate Change.[8]

The Ministry of Education operates the CASE agricultural college and two agricultural high schools, and is responsible for school nutrition programs.

The Ministry of Industry, Investment, and Commerce is responsible for consumer protection in terms of food safety.

[7] The MOAF was merged with Ministry of Industry and Commerce in 2016 and renamed Ministry of Industry, Commerce, Agriculture and Fisheries (MICAF).

[8] Transferred to the Office of the Prime Minister in 2016.

1.4. OVERVIEW OF POLICY PROGRAMS AND ACTIONS

AGRICULTURAL POLICY UTILIZES A LIMITED NUMBER OF INSTRUMENTS: SUBSIDIES, FREE-OF-CHARGE INPUT DISTRIBUTIONS, NATURAL DISASTER ASSISTANCE

Support policies to agriculture in Jamaica consist of the following instruments:

- Tax concessions and waivers of taxes and duties (greatly reduced after 2013)
- High import duties for selected agri-food commodities.
- Subsidized loans through the Development Bank of Jamaica (DBJ)
- Budget transfers (grants) to selected farmers and processors through various programs implemented by the MOAF and its subsidiaries.

The MOAF is responsible for implementing domestic agricultural policies. The main domestic policy instruments used during the period under study included:

- Marketing and value chain development.
- Irrigation infrastructure development.
- Extension services.
- Natural disaster relief.

The main policy projects and programs implemented by the MOAF in 2006-2014 are listed in Annex 1. In accordance with policy priorities, those programs include measures for increased productivity and competitiveness (Agro Parks, export expansion), food security initiatives, privatizations (coffee and cocoa restructuring), and subsector-specific support measures for banana, sugar, and dairy producers. Measures of support to the non-traditional subsectors include training in international business practices, promotional fairs and trade missions, value chain strengthening, and assistance for complying with international standards.

The rules and conditions for distributions of grants and subsidies are not described in the respective programs and therefore are not clear for farmers, and can lead to inefficient use of funds. In many cases, farmers are not aware of the existence of these funds. Compensation for losses due to natural disasters are provided on an ad hoc basis, and the rules and formulas of the distribution of the assistance are not always explicitly spelled out.

1.4.1. DOMESTIC POLICY

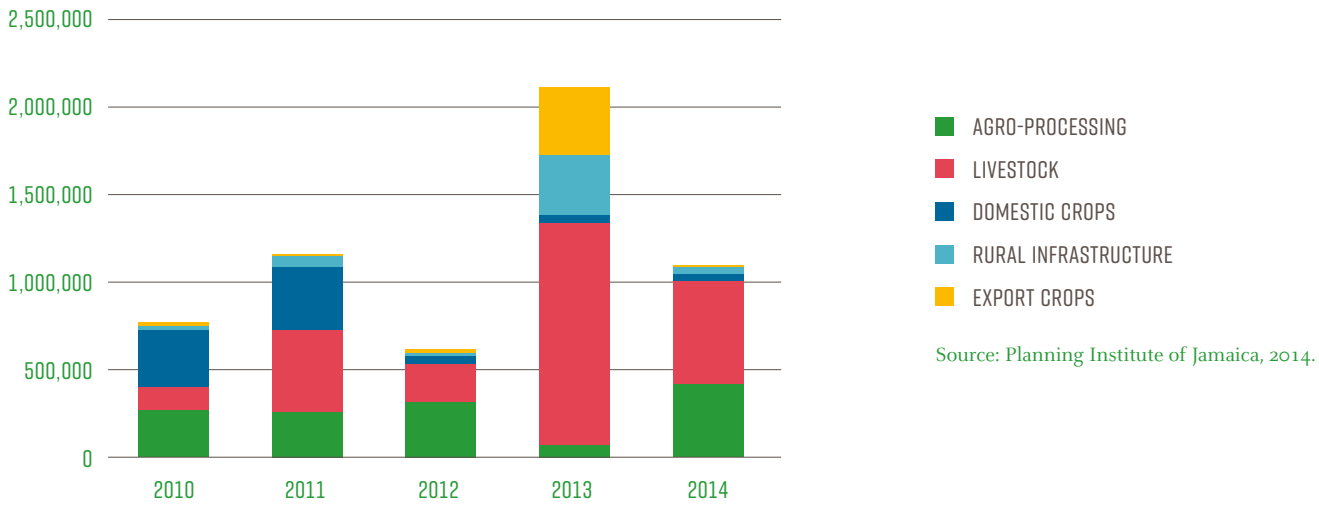
1.4.1.1 – SUBSIDIZED LOANS

SUBSIDIZED LOANS MOSTLY PROVIDED TO AGRI-PROCESSING AND POULTRY

The Development Bank of Jamaica (DBJ) is wholly owned by the GOJ and controlled by the Ministry of Finance and Planning. It provides financing through other financial institutions, as well as directly to farmers.

DBJ loans were issued at a 10% interest rate for agricultural borrowers at the end of 2014, with reduced rates of 5% available for the MOAF Diary Revitalization line of credit for dairy farmers and for the revitalization of the banana industry. The average commercial loan rate over the same time period was 12.93%. DBJ loans were used by livestock farmers (namely, poultry and pig industries) and agri-processors. Domestic crop producers received loans in 2010-2011, but their participation declined (Figure 10), probably because it is more difficult for crop farmers to meet the Bank's eligibility criteria.

FIGURE 10: ALLOCATION OF LOANS TO AGRICULTURE AND AGRI-PROCESSING BY THE DBJ (J$ '000)



Source: Planning Institute of Jamaica, 2014.

1.4.1.2 – INPUT SUPPLY

INPUTS ARE DISTRIBUTED FREE OF CHARGE; THE RULES ARE NOT TRANSPARENT AND DETERMINED BY RADA

A lot of domestically and donor-funded projects (i.e. Small Farmers Input Supply Project in 2010-2012, Production Incentives Project, Sugar Transformation Unit, etc.) include a component of distribution of inputs to farmers, from seeds and fertilizers, to machinery and irrigation equipment. The eligibility criteria for input distribution are not transparent. The Government does not make the costs and outcomes of the input supply component of the support programs public and lacks the resources to evaluate the performance of these programs.

1.4.1.3 – FISCAL POLICY: TAX CONCESSIONS

SECTOR-SPECIFIC TAX CONCESSIONS WERE DISCONTINUED IN 2013, THE INCENTIVE SYSTEM REFORMED

Until 2013, farmers were able to apply for a number of tax concessions, such as the Approved Farmer Status policy. The approved farmer status regime was eliminated during the 2013 tax reform. However, those previously granted this concession can continue to receive it.

Agricultural production tax incentives were reformed with the adoption of the "Omnibus legislation" and presently include the following non sector-specific measures:

- Employment Tax Credit (ETC): reduced effective corporate income tax of 17.5%.
- Capital Allowances.
- Duty-free Importation of Equipment and Machinery, as well as revised tariff rates ranging from 0% to no higher than 20%.
- Productive Input Relief (PIR): duty free importation of certain agriculture-related equipment and machinery used in the production of primary products or in quality control and testing of agricultural products.

Imported farming inputs, such as fertilizers, pesticides and some types of animal feed are exempted from the General Consumption Tax (GCT). The import of agricultural raw materials is exempted from the Common External Tariff (CET) and the Additional Stamp Duty.

1.4.2. AGRI-FOOD TRADE POLICY AND REGULATIONS

TRADE PROTECTION IN AGRICULTURE REMAINS HIGH IN JAMAICA, AIMED AT SUPPORTING DOMESTIC PRODUCERS

Jamaica continues to protect domestic agricultural producers thorough high import duties. Average tariff protection for agricultural products remains substantially higher than for non-agricultural products, at 19.3% vs. 6.7%, respectively (as of 2014).[9]

BOX 2: JAMAICA'S MEMBERSHIP IN TRADE ORGANIZATIONS

Jamaica has been a member of the **WTO** since 1995 and is one of the founding members of the **Caribbean Community (CARICOM)** regional organization. The members of CARICOM have set a **Common External Tariff (CET)** for all goods except those which are not produced or which were produced in insufficient quantity or substandard quality within CARICOM.

Jamaica is an **African, Caribbean, and Pacific (ACP) partner of the Economic Partnership Agreement (EPA)** with the European Union (EU).

Jamaica is a partner to the following **Free Trade Agreements (FTA)**:

- CARIFORUM / EC Economic Partnership Agreement (2013)
- CARICOM / Cuba Economic Cooperation Agreement (2014)
- CARICOM / Costa Rica Free Trade Agreement (2014)
- CARICOM / Dominican Republic Free Trade Agreement (2014)
- CARICOM / Colombia Free Trade Agreement (2000)
- CARICOM / Venezuela Free Trade Agreement (2000)

CUSTOM TARIFFS ARE MODERATE, BUT ADDITIONAL DUTIES CONTRIBUTE TO HIGH PROTECTION

Import tariffs are not high in Jamaica, but additional import taxes are applied on most agricultural commodities, making real protection levels much higher. Imports into Jamaica are subject to:

- General Consumption Tax (GCT) rate of 16.5% (reduced in June 1, 2012 from 17.5%), levied on the sum of the CIF value
- CET customs duty
- Special Consumption Tax (SCT)
- Additional Stamp Duty
- Environmental Levy: 0.2%
- Standard Compliance Fee (SCF): 0.3%
- Customs User Fee: 2%

[9] http://stat.wto.org/CountryProfile/WSDBCountryPFView.aspx?Language=E&Country=JM

Additional Stamp Duty (ASD is a market protection tax, levied on almost all agri-food commodities) is set at the following levels:[10]

- Onions, tomatoes: 80%
- Fresh vegetables and beans: 86-90%
- Fruit Juices: 86%
- Poultry meat: 86%
- Eggs: 86%
- Pork cuts and products: 86%
- Beef and veal cut and products: 86%
- Grains (other than for use in the industry): 70%
- Soyameal: 70%
- Cornmeal: 70%

Since ASD is applied to the value of imports including the customs tariff, combined protection levels reach as high as 260% for poultry and tomatoes.

In 2013, as part of an agreement with the IMF, the tariff structure has been reformed and all discretionary waivers cancelled. Tariff rates at or below 40% have generally been reduced to the default rate of 20 %. However, CET rates are still above 50% for poultry, milk and cream (including powdered milk), and vegetables. Some duty rates that were at 0% before, have been increased to 5%, i.e. for peas, beans and lentils, wheat, flour, and cornmeal.[11] Powdered milk and refined sugar imports require import licenses.

Import-related tax reductions and waivers have been considerably reduced

Import taxes, concessions, and waivers (customs tax expenditures[12]) are provided under the Customs Act, various incentive acts, and through ad hoc waivers. Zero GCT for food items remains the main concession related to agriculture (See Annex 2).

[10] http://moj.gov.jm/sites/default/files/laws/Stamp%20Duty%20Act_1.pdf

[11] Customs Tariff is set in the Custom Tariff (Revision) (Amendment) Resolution, 2013.

[12] The tax concessions and waivers are known as "tax expenditures" in Jamaica, while in fact they are not expenditures, but budget revenue foregone.

1.4.2.1 – EXPORT REGULATIONS

EXPORT LICENSES ARE REQUIRED

High levels of intervention from commodity boards and other regulators in export chains contribute to the high costs of exports (section 1.1) and create disincentives for exporters. Jamaica requires export licenses for a number of agricultural goods (Table 2).

TABLE 2: AGRICULTURAL GOODS IN JAMAICA SUBJECT TO EXPORT LICENSING (2015)

PRODUCT	AUTHORITY
COCONUT FOR COMMERCIAL USE	COCONUT INDUSTRY BOARD
EGGS	MINISTRY OF AGRICULTURE, TRADE BOARD
PIMENTO	TRADE BOARD
SUGAR	SUGAR INDUSTRY AUTHORITY, TRADE BOARD
LIVE ANIMALS (SUBJECT TO CITES)	NATURAL RESOURCES CONSERVATION AUTHORITY
SHELLS (SUBJECT TO CITES)	NATURAL RESOURCES CONSERVATION AUTHORITY
GREEN COFFEE BEANS; ROASTED COFFEE OVER 5 KG	LICENSE FROM THE COFFEE INDUSTRY BOARD
PROCESSED FOODS	EXPORT PERMIT FROM THE BUREAU OF STANDARDS JAMAICA
ANIMAL OR PLANT PRODUCTS	PERMIT FROM THE MINISTRY OF AGRICULTURE

Source: http://www.jacustoms.gov.jm/home_template.php?page=c_export&group_id=1

RURAL DEVELOPMENT IS AN IMPORTANT PART OF AGRICULTURAL POLICY IN JAMAICA

Rural development is one of the seven goals of the Vision-2030 development plan. Rural development programs are administered by RADA. Actions for rural development are included in various sector-specific programs (sugar, bananas), as described above. However, the poverty level in rural areas remains above the policy targets. Public investments in infrastructure development increase every year (see section 2.3.1.4).

EXTENSION SERVICES PLAY AN IMPORTANT ROLE IN KNOWLEDGE DISTRIBUTION

Extension services are provided by RADA officers. RADA negotiates marketing arrangements for farmers wishing to sell fresh produce to hotels, supermarkets, and agri processors. Insufficient staff as well as the number of additional tasks —such as input distribution— are among the limitations RADA extension activities face.

AGRICULTURAL EDUCATION DOES NOT ADDRESS MODERN CHALLENGES

There is a disconnect between agricultural education and real life agricultural production needs, and RADA is therefore forced to spend a significant amount of money and time on in-house training for its officers.

INFORMATION SYSTEM ONLY FOCUSES ON FRUITS AND VEGETABLES

The Agricultural Business Information System (ABIS) project was implemented by RADA. The project is intended to:

- Establish and operate a database-driven system to process data on stakeholders and their activities.
- Be a repository of technical information (from new research and tried and proven cultural practices)
- Assist stakeholders in buying and selling produce, production inputs, and forecasting key agricultural variables.

With the ABIS, the MOAF is making a significant effort to expand the scope of information available to farmers and agribusiness traders, including subsectors' performance reports and price data. However, the commodities for which full price information is available are limited to fruits and vegetables.

2. ANALYSIS OF AGRICULTURE SUPPORT

2.1. METHODOLOGY

Use of the producer support estimate (PSE) methodology by the OECD (OECD, 2010) provides a standardized quantitative method for measuring agricultural sector support. The OECD has calculated this metric for a number of countries since 1987, and since 2003, the IDB Agrimonitor initiative has applied the methodology to 15 of its member countries in Latin America and the Caribbean.

Quantitative policy analysis compares observed market conditions to a benchmark situation. The aggregated effect of the policy in the supply-demand model is measured by the price ratios in a scenario with the program and a scenario without it. Producer prices (farm gate prices) are thus compared to the prices that would be expected without policy interventions, e.g. market equilibrium or reference prices. The impact of public policy is measured by the difference between market and reference prices. If the difference between market and reference output prices is positive, policy results in benefits to producers; if negative, then the policy represents implicit taxation of farmers.

The methodology measures support for producers (PSE and related indictors), consumers (CSE, CSCT), the sector as a whole (GSSE), and total policy transfers to the agricultural sector (TSE). For several commodities, the ERP indicators were calculated to take into account the support policy along the value chain. See Annex 4 for the glossary of the indicators used in this section.

2.2. DATA DESCRIPTION AND ANALYSIS

This report updates and builds upon the IDB-FAO study of agricultural policy in Jamaica conducted in 2011[13]. Previous applications of PSE methodology include the World Bank's study published in 2013, an update of the 2009 publication of PSEs for 2006-2007 (World Bank, 2013; Peña, Gurria, and Smikle, 2009),[14] which estimated the PSE at US$620 million or 38% of gross farm receipts, and TSE at US$675 million in 2011, and came to conclusions and recommendations similar to those found in this report.

The range of commodities chosen was intended to include both standard MPS commodities and the most potentially competitive commodities. The OECD recommends that the sum of the production values of the selected set of representative commodities (MPS commodities) should account, on average for the last three years, for not less than 70% of the total value of agricultural production, and the share of each selected commodity be >1%.[15] The representative set of commodities selected in Jamaica is presented in Figure 11. The average share of MPS commodities in Jamaica's value of production for the past 3 years reached 76%.

The sources of information on domestic farm-gate prices and production volumes included the Economic and Social Survey of Jamaica 2010-2015, the MOAF (various divisions), the Sugar Industry Research Institute and commodity boards and associations

[13] FAO, 2013.

[14] The World Bank reported higher national level of protection due to different treatment of the negative values of MPS/SCT and different commodity set; the results and recommendations for the commodities with positive MPS values are similar to those presented in this study.

[15] Corn was included in the 2011 set of commodities, but was excluded from the list of commodities in 2016. It does not play an important role in production and producer support, but its consumption is substantial, therefore CSE results were affected by this exclusion.

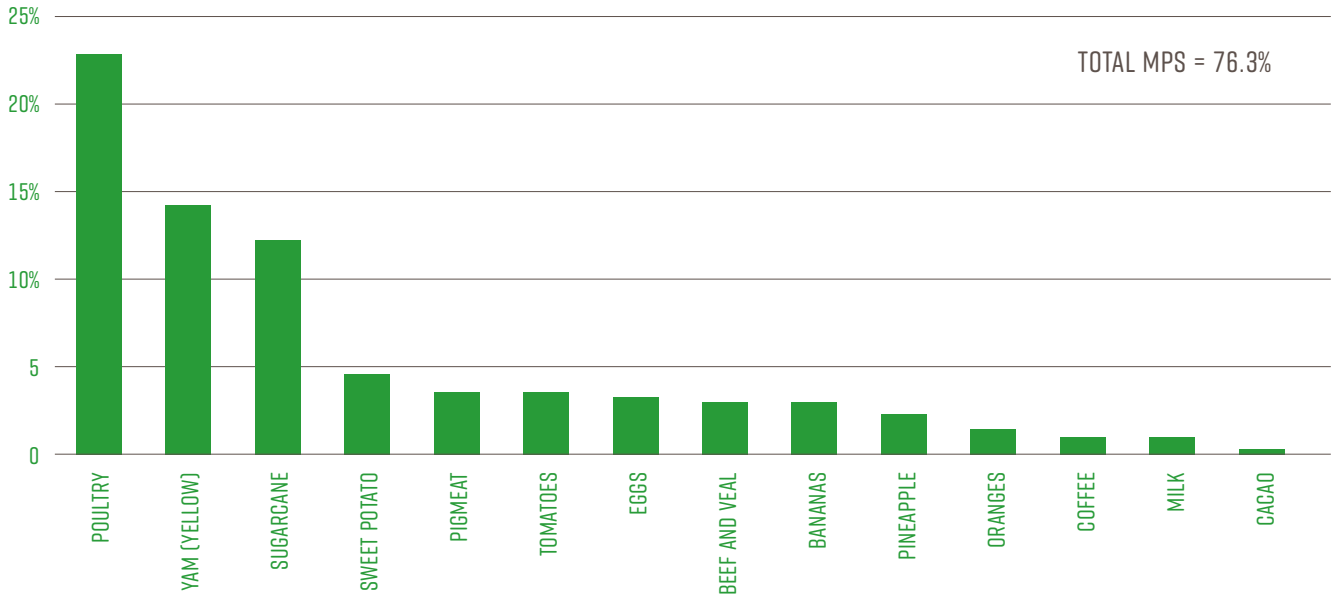
(Coffee Industry Board, Jamaica Dairy Development Board, Egg Farmers' Association, Jamaica Pig Farmer's Association), the Sugar Industry Association, Caribbean Broilers, and Jamaica Broilers.

Farm-gate prices for bananas, sugar, cocoa, and coffee are the prices that farmers get when delivering their output to the commodity boards. For poultry, wholesale prices were used as domestic producers' prices because poultry is mostly produced by two vertically integrated companies who only disclose wholesale prices.

Reference prices are average export and import unit values for exported and imported commodities, respectively. The average unit values at the border were adjusted for marketing margins (processing, transportation, and handling costs) to ensure comparability with the observed farm-gate prices.

The exchange rate in Jamaica was close to equilibrium level,[16] so no exchange rate adjustments were made. The nominal exchange rate was used for calculations.

FIGURE 11: SHARE OF MPS COMMODITIES TO TOTAL VALUE OF AGRICULTURAL PRODUCTION IN JAMAICA (AVERAGE FOR 3 YEARS: 2012-2014)



Source: authors' estimations based on MOAF data.

[16] According to the IMF, Jamaica's currency was at equilibrium or moderately overvalued during the period of study. IMF reported that the real exchange rate was 6.5% above the equilibrium in 2007, within the standard error of 12%; in 2013 it was estimated at 8-22%; and in 2014, at 3-15% (IMF, 2008, 2014). However, the exchange rate was flexible and reacted to external shocks, so any deviations from the equilibrium were self-corrected. There were no conventional estimates of the equilibrium exchange rate for Jamaica.

While budget classification in Jamaica is very detailed and organised by program, in some cases it was still impossible to discern the financial allocations to the different components of each program, i.e. in kind vs. financial forms of grants, and individual support to farmers vs. support to farmers collectively within a given program. When no other indications or insights are available for programs of support where components of PSE and GSSE are included in the same program, 50% of costs have been attributed to GSSE and 50% of costs to the PSE. If a major part of the spending of a selected program can be identified as a budget transfer to individual producers, all program findings have been treated as such (PSE). The same criterion is applied if most funding for any program is support to general services, therefore it is treated as GSSE.

The administrative costs of implementing agricultural sector support programs —such as salaries, travel expenses, and capital goods— do not produce any transfers to producers and are not included in PSE/GSSE calculations. Forestry and fishery support programs are also not included in PSE/CSE/GSSE calculations.

It has been assumed that the budget is spent evenly over the course of a year, and thus spending was redistributed to obtain calendar year data.

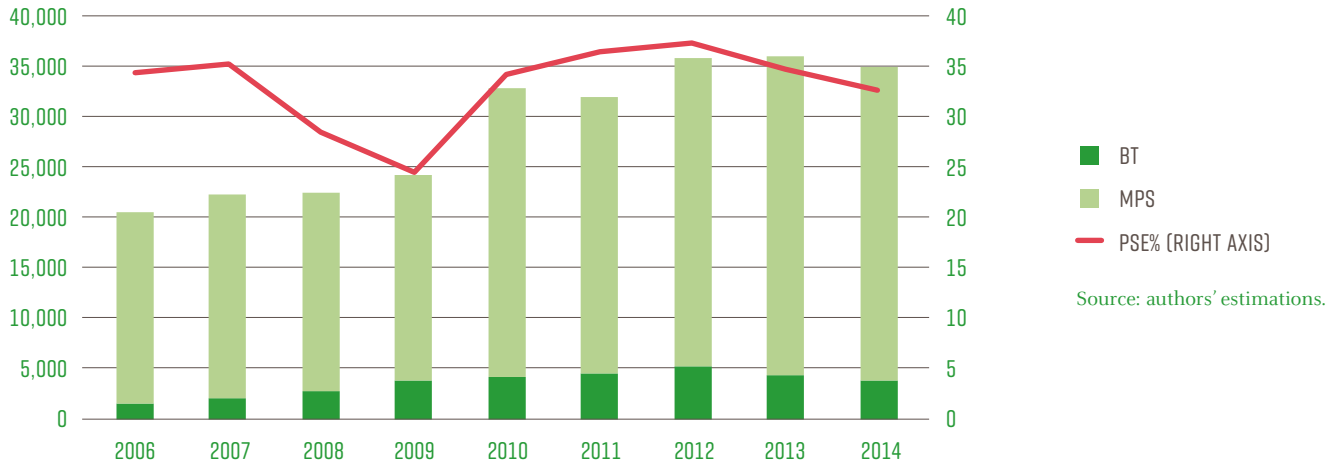
2.3. RESULTS: LEVEL AND STRUCTURE OF SUPPORT TO PRODUCERS

In Jamaica, like in most developing countries, market price support (MPS) is the main component of the PSE. Market price support directly affects production decisions, and therefore, potentially distorts markets and trade. On average, in 2012-2014, MPS represented 85% of national PSE. The role of budget transfers also increased since 2006 (Figure 12). Transfers to agricultural producers individually as a result of agricultural policy reached J$30.9 billion, or US$278 million in 2014 (Table 3).

PSE% (support to producers as a percent share of gross farm receipts) was volatile during the period of study, mostly due to MPS volatility, and reached 34.9% in 2012-2014.

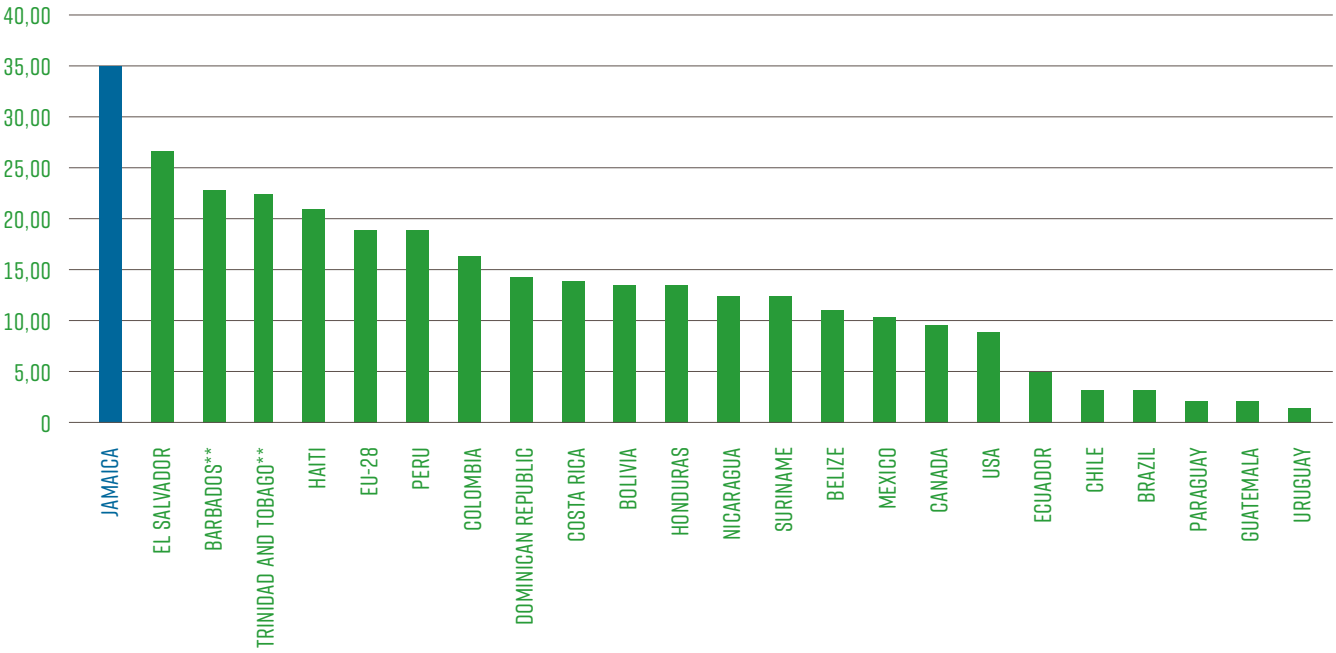
PSE% in Jamaica is considerably higher than in most Latin American countries, but only slightly higher than in its Caribbean peers, Barbados and Trinidad and Tobago, and the European Union average level (Figure 13).

FIGURE 12: PRODUCER SUPPORT ESTIMATE COMPOSITION IN JAMAICA (2006-2014)



Source: authors' estimations.

FIGURE 13: PSE% IN JAMAICA AND OTHER COUNTRIES (AVERAGE VALUE FOR 2012-2014*)



* OECD countries, Brazil, Colombia, Trinidad and Tobago, Dominican Republic 2013-2015, Uruguay 2011-2013, Argentina, Costa Rica, Ecuador, Honduras, El Salvador 2010-2012, Guatemala 2009-2011, Nicaragua 2009-2010, Bolivia 2008-2009.

** Preliminary.

Source: authors' estimations.

TABLE 3: SUPPORT ESTIMATE IN JAMAICA (2012-2014)

INDICATOR	UNITS	2012	2013	2014
I. TOTAL VALUE OF PRODUCTION (AT FARM GATE)	$J MN	76,447.60	86,258.30	90,652.70
I.1. OF WHICH, SHARE OF MPS COMMODITIES (%)	%	77.35	74.51	76.97
II. TOTAL VALUE OF CONSUMPTION (AT FARM GATE)	$J MN	91,135.09	101,972.62	107,066.96
II.1. OF WHICH, MPS COMMODITIES	$J MN	70,409.51	75,761.58	81,926.07
III.1. PRODUCER SUPPORT ESTIMATE (PSE)	$J MN	30,498.80	31,504.95	30,943.80
A. SUPPORT BASED ON COMMODITY OUTPUTS	$J MN	26,591.35	28,526.43	28,637.11
A1. MARKET PRICE SUPPORT	$J MN	25,136.24	27,023.07	26,976.26
SUGAR MPS	$J MN	4,706.14	3,959.29	1,895.71
COFFEE MPS	$J MN	-685.27	-914.39	-835.09
COCOA MPS	$J MN	-68.52	71.73	-96.43
ORANGES MPS	$J MN	0.00	0.00	0.00
BANANAS MPS	$J MN	276.48	139.30	0.00
PINEAPPLE MPS	$J MN	0.00	0.00	0.00
TOMATOES MPS	$J MN	0.00	177.66	684.02
SWEET POTATOES MPS	$J MN	0.00	0.00	0.00
YAMS MPS	$J MN	0.00	0.00	0.00
MILK MPS	$J MN	114.68	0.00	0.00
BEEF MPS	$J MN	0.00	0.00	0.00
PIGMEATMPS	$J MN	0.00	0.00	0.00
POULTRY MPS	$J MN	15,076.35	16,146.98	18,993.63
EGGS MPS	$J MN	0.00	496.50	0.00
OTHER MPS	$J MN	5,716.38	6,946.01	6,334.42
A2. PAYMENTS BASED ON OUTPUT	$J MN	1,455.11	1,503.36	1,660.85
B. PAYMENTS BASED ON INPUT USE	$J MN	3,561.80	2,719.32	2,276.29
B1. VARIABLE INPUT USE	$J MN	1,047.16	512.02	418.84
B2. FIXED CAPITAL FORMATION	$J MN	1,255.38	1,366.07	1,025.18
B3. ON-FARM SERVICES	$J MN	1,259.26	841.22	832.28
G. MISCELLANEOUS PAYMENTS	$J MN	345.65	259.20	30.40
III.2. PERCENTAGE PSE	%	37.28	34.72	32.70
IV. GENERAL SERVICES SUPPORT ESTIMATE (GSSE)	$J MN	2,806.82	3,278.71	3,153.84
H. AGRICULTURAL KNOWLEDGE AND INNOVATION SYSTEM	$J MN	1,251.95	1,106.47	1,051.41
H1. AGRICULTURAL KNOWLEDGE GENERATION	$J MN	674.01	495.99	437.54
H2. AGRICULTURAL KNOWLEDGE TRANSFER	$J MN	577.94	610.48	613.87
I. INSPECTION AND CONTROL	$J MN	271.15	280.59	300.76
I1. AGRICULTURAL PRODUCT SAFETY AND INSPECTION	$J MN	93.01	94.93	104.34
I2. PEST AND DISEASE INSPECTION AND CONTROL	$J MN	178.14	185.66	196.42
I3. INPUT CONTROL	$J MN	0	0	0

TABLE 3: SUPPORT ESTIMATE IN JAMAICA (2012-2014)

INDICATOR	UNITS	2012	2013	2014
J. DEVELOPMENT AND MAINTENANCE OF INFRASTRUCTURE	$J MN	1,218.58	1,845.14	1,770.54
J1. HYDROLOGICAL INFRASTRUCTURE	$J MN	207.77	271.74	157.74
J2. STORAGE, MARKETING, OTHER PHYSICAL INFRASTRUCTURE	$J MN	748.80	1,274.52	1,354.49
J3. INSTITUTIONAL INFRASTRUCTURE	$J MN	207.15	239.86	199.90
J4. FARM RESTRUCTURING	$J MN	54.86	59.02	58.41
K. MARKETING AND PROMOTION	$J MN	65.15	46.51	31.14
K1. COLLECTIVE SCHEMES FOR PROCESSING AND MARKETING	$J MN	31.08	33.19	31.14
K2. PROMOTION OF AGRICULTURAL PRODUCTS	$J MN	34.06	13.31	0.00
V.1. CONSUMER SUPPORT ESTIMATE (CSE)	$J MN	-29,906.42	-30,811.77	-31,064.29
O. TRANSFERS TO PRODUCERS FROM CONSUMERS (-)	$J MN	-25,386.93	-27,232.62	-27,422.76
O1. OF WHICH, MPS COMMODITIES	$J MN	19,613.54	20,232.75	20,983.49
P. OTHER TRANSFERS FROM CONSUMERS (-)	$J MN	-7,661.34	-7,028.47	-7,507.41
P1. OF WHICH, MPS COMMODITIES	$J MN	5,919.03	5,221.87	5,744.56
Q. TRANSFERS TO CONSUMERS FROM TAXPAYERS	$J MN	3,141.85	3,449.31	3,865.89
Q1. COMM. SPECIFIC TRANSFERS TO CONSUMERS	$J MN	0.00	0.00	0.00
Q2. NON-COMM. SPECIFIC TRANSF. TO CONSUMERS	$J MN	3,141.85	3,449.31	3,865.89
R. EXCESS FEED COST	$J MN	0	0	0
V.2. PERCENTAGE CSE	%	-33.99	-31.27	-30.10
VI.1. TOTAL SUPPORT ESTIMATE (TSE)	$J MN	36,447.47	38,232.98	37,963.53
S. TRANSFERS FROM CONSUMERS	$J MN	33,048.27	34,261.09	34,930.17
T. TRANSFERS FROM TAXPAYERS	$J MN	11,060.54	11,000.35	10,540.77
U. BUDGET REVENUES (-)	$J MN	-7,661.34	-7,028.47	-7,507.41
VI.2. PERCENTAGE TSE	%	2.77	2.67	2.48

Source: authors' estimations.

2.3.1. SUPPORT TO PRODUCERS BY COMMODITY

The level of support by commodity is measured by MPS (transfers from consumers and taxpayers measured by the price difference) and Producer SCT% (MPS plus transfers from taxpayers in the form of budget payments as a share of gross farm receipts).

The overall result of the public policy intervention in Jamaica is positive in terms of transfers to producers. Support to the poultry sub-sector dominates Jamaica's MPS, followed by sugar, while other crops, beef, milk, and pork producers were implicitly taxed or not supported at all (Table 4).

The national level of support to producers in Jamaica must be interpreted with care, because it represents a combination of significant protection for the poultry subsector and implicit taxation of the coffee subsector.

TABLE 4: MARKET PRICE SUPPORT IN JAMAICA 2010-2014 (J$ MN)

	2006	2007	2008	2009	2010	2011	2012	2013	2014	SHARE IN NATIONAL MPS 2012-2014, %
SUGAR	617.9	769.8	598.3	832.6	1,780.8	3,306.4	4,706.1	3,959.3	1,895.7	17.6%
COFFEE	-636.3	-563.3	-717.4	-1,128.8	-825.8	-771.2	-685.3	-914.4	-835.1	-4.0%
COCOA	-50.3	-110.9	-36.6	3.8	-82.9	-29.6	-68.5	71.7	-96.4	-0.2%
ORANGES	0	0	0	0	0	0	0	0	0	0%
BANANAS	540.2	390.8	225.8	186.7	115.0	0	276.5	139.3	0	0.7%
PINEAPPLE	224.0	139.3	0	0	0	0	0	0	0	0%
TOMATOES	0	434.9	295.4	0	452.2	0	0	177.7	684.0	1.4%
POTATOES	0	0	0	0	0	0	0	0	0	0%
YAMS	494.6	0	0	0	243.8	0	0	0	0	0%
MILK	6.5	77.9	-	170.1	28.8	15.5	114.7	0	0	0.2%
BEEF	57.6	474.8	509.0	170.1	385.2	65.4	0	0	0	0%
PIGMEAT	0	0	0	0	0	0	0	0	0	0%
POULTRY	9,248.9	9,848.7	9,152.2	9,061.7	11,773.2	14,601.2	15,076.3	16,147.0	18,993.6	83.5%
EGGS	450.0	250.9	0	0	0	0	0	496.5	0	0.8%

Source: authors' estimations.

The MPS shows the effect of policy actions on agricultural producers and consumers. However, it also captures some implicit non-policy effects:

- Lack of physical infrastructure: poor condition of rural roads, lack of storage capacity for fruits and vegetables, lack of local collection centers, etc, increased producer costs.[17]
- Lack of soft infrastructure: inefficient financing, instability of regulatory systems, and limited and costly information indirectly affect the MPS level.
- Low production concentration: farmers receive lower prices and middlemen receive a greater share of market margins.
- Technological retardation of the processing industry.
- Institutional barriers to trade: high export costs, monopolistic export agents.
- Exchange rate instability.

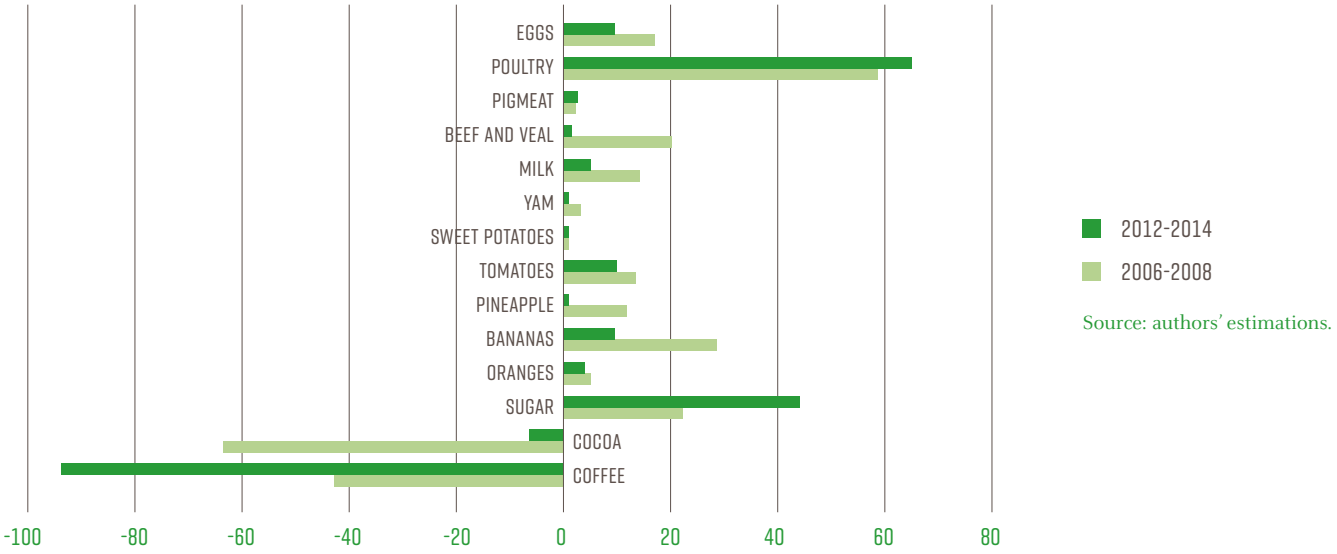
While lack of market infrastructure is sometimes viewed as a non-policy effect on the producers, infrastructure development is in fact the result of public policy decisions and of the priorities set for public spending, especially in emerging economies. Public policies that enhance development of market infrastructure development, such as the creation of collection centers, storage facilities and support to small businesses for on-farm processing, have welfare effects on market players that are visible not only directly as budget payments to infrastructure development (GSSE), but indirectly, in MPS levels resulting from better price transmission.

Transfers to producers, arising from agricultural policy, as a percentage share of farm receipts, measured by SCT%, vary from -94% for coffee to 65% for poultry (Figure 14).

The MPS and PSCT for selected subsectors are discussed in more detail in the following pages.

[17] The infrastructure characteristics were taken into account as much as possible in the calculating the price gap. However, because marketing margin information was limited, it was impossible to factor in all value chain characteristics. Since public policy is applied in markets with imperfect infrastructure, it is difficult to fully distinguish the effect of infrastructure and organizational deficiencies on policy results, and the indicators should be interpreted taking this into account.

FIGURE 14: PRODUCERS SINGLE COMMODITY TRANSFERS IN JAMAICA (%)



Source: authors' estimations.

2.3.1.1 – BANANAS SUBSECTOR POLICY ANALYSIS

DOMESTIC POLICY: SUPPORT TO SOCIAL DEVELOPMENT OF BANANA GROWING AREAS AND DISEASE MANAGEMENT

The Government continues efforts to rehabilitate the banana subsector, where the policy is developed based on long-term goals[18] and is focused on efforts intended to have long-term benefits: strengthening value chains, from input supply to harvest management and trading; ensuring compliance with the international standards, managing pest risks, and establishing a disaster relief fund (see Annex 3 for detailed description of banana support programs).

SUPPORT ESTIMATES SHOW THE POLICY'S EFFECTS ARE NEUTRAL

Price transmission is fairly high in the banana subsector, and producer prices came very close to reference prices. In some years, farmers received lower prices than they would get in the absence of any public policy. However, this contributes to the overall policy goal of increasing export competitiveness. The budget

[18] The policy is developed according to the Overall Country Strategy for the Banana Industry (2010-2020, revised in 2012).

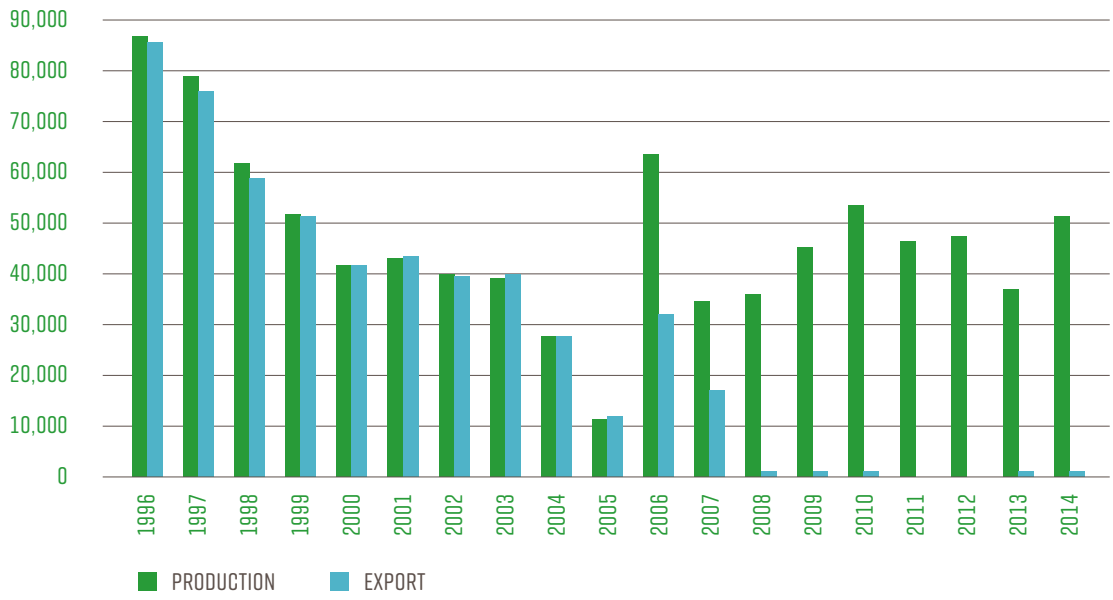
transfers from the Banana Support Project (EU) have declined significantly, and the overall effect of agricultural policy on the banana subsector was neutral. Competitive local prices with less government intervention following the efforts to restructure the sub-sector will further contribute to its recovery.

BOX 3: BANANAS SUBSECTOR CHARACTERISTICS

Challenges: low production levels due to weather events and diseases, export stopped in 2008.

Banana production increased almost 40% in 2014, following several years of decline, and exports increased by 2.5 times compared to 2013. Productivity is also increasing. The banana subsector is extremely vulnerable to weather events and plant diseases. In 2008, Jamaica ceased to export bananas following the destruction of the plantations by hurricanes Gustav and Dean[19] (Figure 15) and export is now recovering slowly.

FIGURE 15: JAMAICA'S BANANA PRODUCTION AND EXPORT (TONS)



Source: BOJ[20] for 1996-2005, MOAF[21] for 2006-2014. UN Comtrade data at http://comtrade.un.org/

[19] The Jamaica Producers Group (formerly the Jamaica Banana Producers Association Ltd.) ceased exports of bananas in August 2008 providing the high costs of the recovery after recent storms as a reason. Hurricane Gustav destroyed banana trees in Eastern Banana and St. Mary Banana Estates that accounted for approximately 90% of Jamaica's exports.

[20] http://www.boj.org.jm/statistics/econdata/stats_list.php?type=9

[21] http://www.moa.gov.jm/AgriData/index.php

2.3.1.2 – COFFEE SUBSECTOR POLICY ANALYSIS

POLICY ON COFFEE CONSISTS OF INPUT DISTRIBUTION AND EXTENSION SERVICES

Coffee farmers receive transfers as part of the Competitive Coffee Enterprises Programme[22] and benefit from extension services and ad hoc disaster support in the form of free input distribution, but receive limited budgetary support.

The Government's support to the coffee industry is mostly provided on an ad hoc basis, as a reaction to the current years' challenges, mainly in the form of free-of-charge input distribution:

- In 2010-11, as a result of a drop in international demand, dealers stopped purchasing cherry coffee, and the Government opened a loan facility of J$310 million to provide financing to coffee dealers to purchase coffee.
- In 2011-12 and 2012-2013, the Government of Jamaica issued grants of J$29 million[23] and J$46.85 million,[24] respectively, to assist coffee farmers. The funds were used by the CIB to purchase fertilizer, fungicides and spray equipment for distribution to coffee farmers.
- At the end of 2012, a J$40-million grant was provided for the purchase of fertilizers and fungicides to assist with the recovery from Hurricane Sandy.
- In 2014, coffee farmers received aid from RADA in the form of compensation for damage from fires: 275 farmers received 1,003 bags of (50 lb) fertilizer and 199,800 pots of seedlings at 300 plants per acre. The total subsidy amounted to J$21.5 million.

[22] The Competitive Coffee Enterprises Programme (Coffee Industry Board/Common Fund for Commodities) (2010-2014) was aimed at improving productivity in Non-Blue Mountain regions. Seedlings were provided to coffee producers at reduced cost and support to acquiring appropriate technologies and tools were also provided. The Project envisages soil amendments, control of diseases and pests, extensions for coffee producers, and marketing assistance.

[23] Grants to purchase fertilizers, fungicides, and spray equipment. (CIB annual report 2011-12)

[24] To assist in purchase of fertilizers and combat the coffee leaf rust disease. (CIB annual report 2012-13)

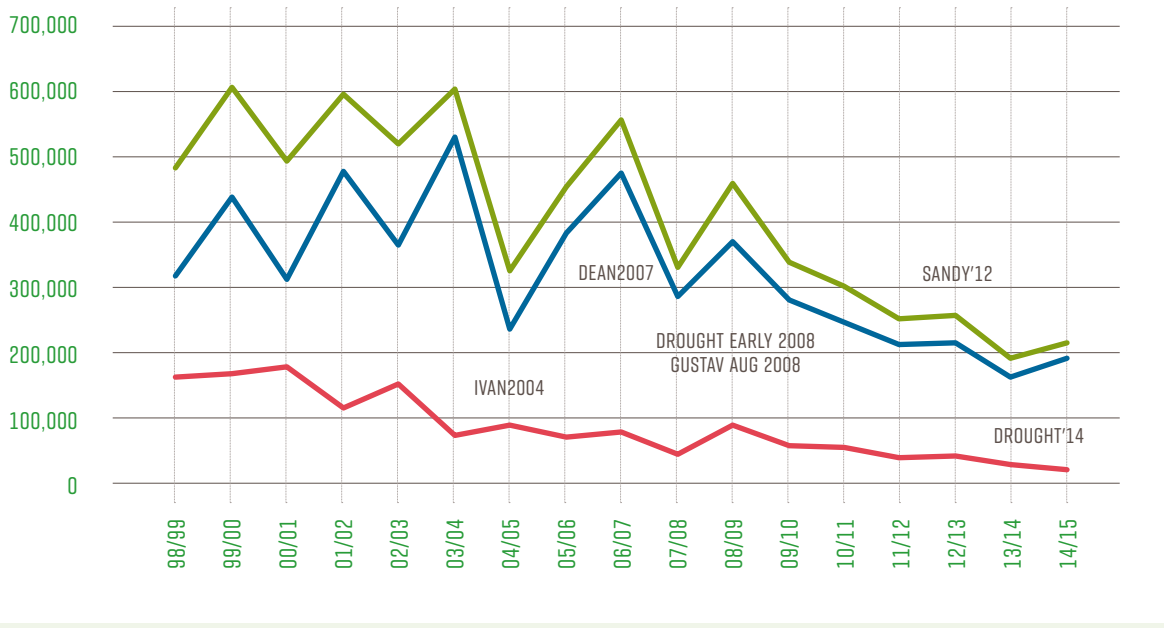
BOX 4: COFFEE SUBSECTOR CHARACTERISTICS

Challenges: natural disasters, plant disease, decline in international prices and in Japanese demand.

The coffee industry was privatized in 2013, and the Government no longer plays any role in commercial activities.

Since 2006, the coffee subsector has been severely affected by natural disasters. In 2006, the coffee subsector discontinued the purchase of agriculture insurance, which has been one of the main reasons for the recent production decline in both production and productivity (Figure 16). Coffee production in 2013/14 has been the lowest since 1988/1989, due mainly to the prevalence of the coffee leaf rust disease and low prices on international markets (Planning Institute of Jamaica, 2014).

FIGURE 16: JAMAICA'S CHERRY COFFEE PRODUCTION IN AVG. BOXES (60LBS/27KG) AND RECENT CLIMATE EVENTS



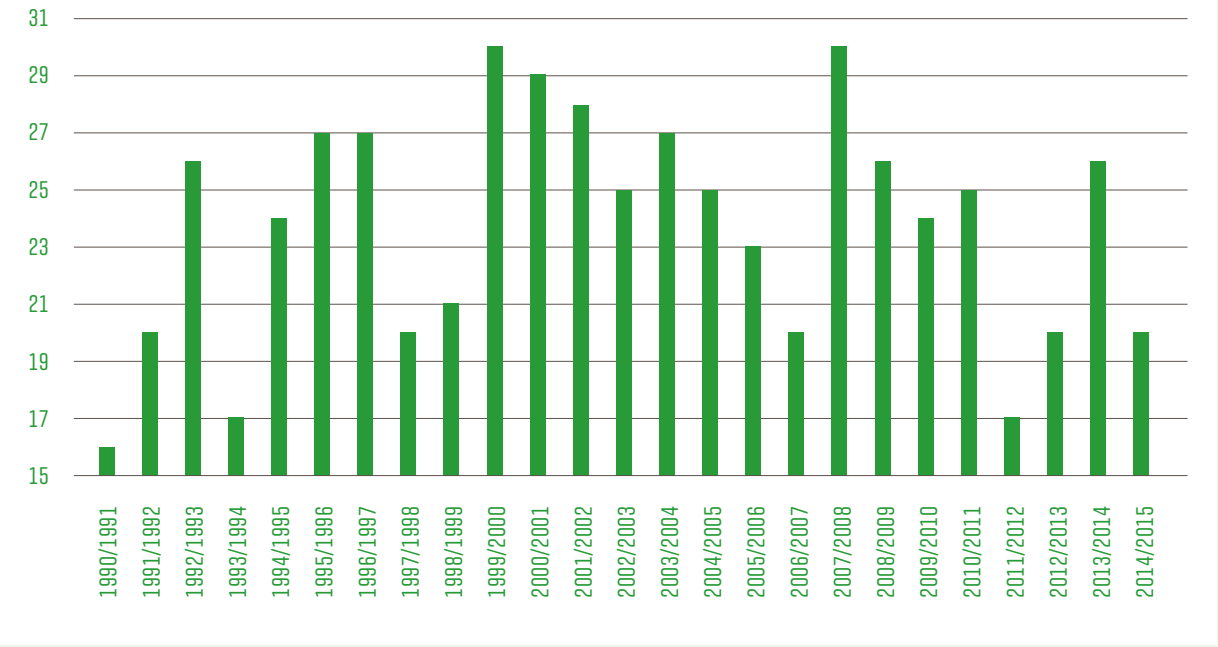
Source: Coffee Industry Board.

Japan remains the main market for the Jamaica Blue Mountain premium coffee variety. Other markets include the USA, the UK, and Taiwan. The reduction of demand from the Japanese market, first seen by the coffee subsector in 2010, has had a significant adverse effect on coffee production and exports.

[25] World Bank, 2011.

BOX 4: COFFEE SUBSECTOR CHARACTERISTICS

FIGURE 17: JAMAICA'S COFFEE (GREEN) EXPORT, THOUSANDS 60-KG BAGS



Source: Coffee Industry Board.

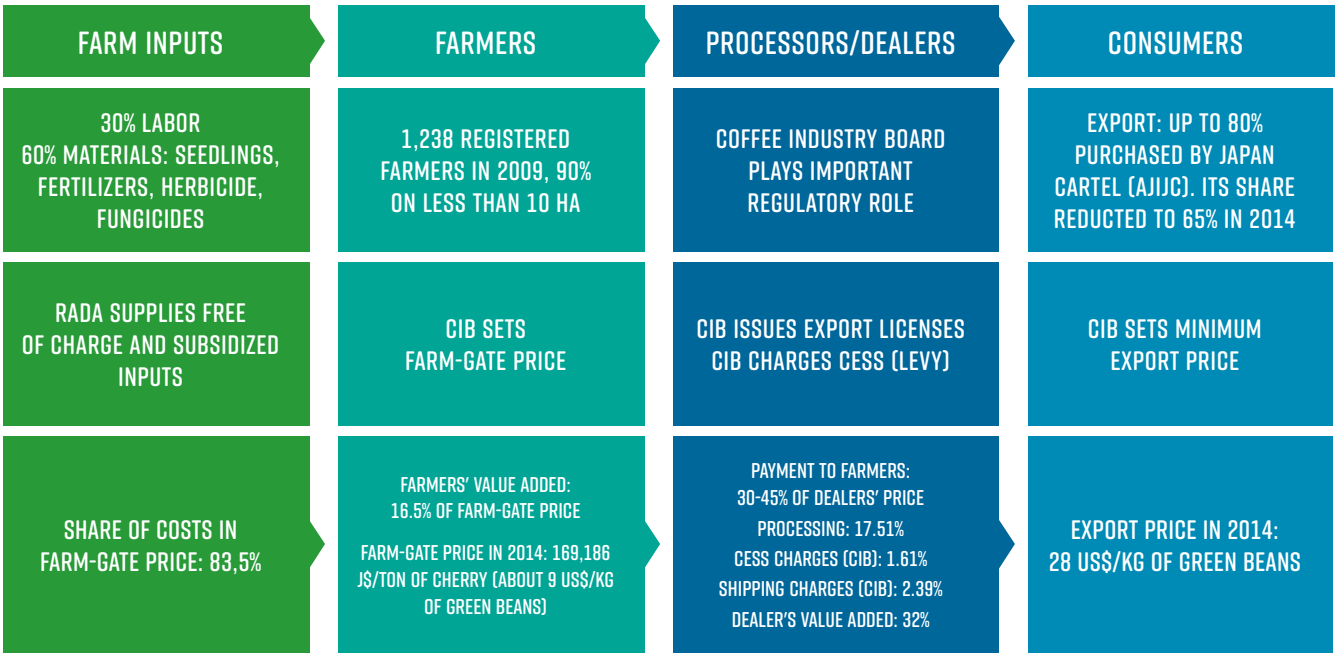
THE COFFEE INDUSTRY BOARD PLAYS AN IMPORTANT REGULATORY AND OVERSIGHT ROLE

The coffee value chain is strongly integrated, with the Jamaican Coffee Industry Board (CIB) having a significant regulatory impact (Figure 18).

The CIB, established in 1948, provides quality control, licensing, issues export authorization, and provides advisory services and other forms of assistance to farmers. The CIB also negotiates minimum prices both domestically (for coffee dealers to pay farmers) and internationally (for exports). While the purchase price is set by the CIB, some processors offer benefits to farmers, including services and advanced payments.

The Coffee Industry Board, while established to protect the sub-sector, in fact creates excessive market intervention, as revealed by coffee MPS and SCT. This is likely to be one of the sources of the disincentives for coffee farmers.

FIGURE 18: COFFEE VALUE CHAIN ANALYSIS, 2014



Source: Coffee Industry Board[26], interview with Wallenford Coffee Co.[27]

MPS AND SCT ARE NEGATIVE AND IMPLICIT TAXATION IS INCREASING

The main issues in the coffee sub-sector include excessive export regulation, lack of natural disaster insurance, and limited access to credit for the purchase of seedlings. Despite the government's and producers' efforts to increase the share of premium coffee prices received by farmers, the price gap in this sub-sector continued to increase. This is probably due to the excessive regulatory and intermediary role of the Coffee Industry Board. There is also a formal tax payable to the CIB, which is reflected in the negative MPS, along with administrative costs of export procedures (including licensing), inefficient market organization, and infrastructure deficiencies (lack of investment in infrastructure and losses due to the excessive commodity board regulations). It would, however, be incorrect to interpret the whole amount of the price gap as a result of policy interventions, as the effect of policy actions or lack of actions is exacerbated by the value chain's organizational inefficiencies.

[26] Cherry Production update for 2015/2016 crop year and projections, CIB 2014.

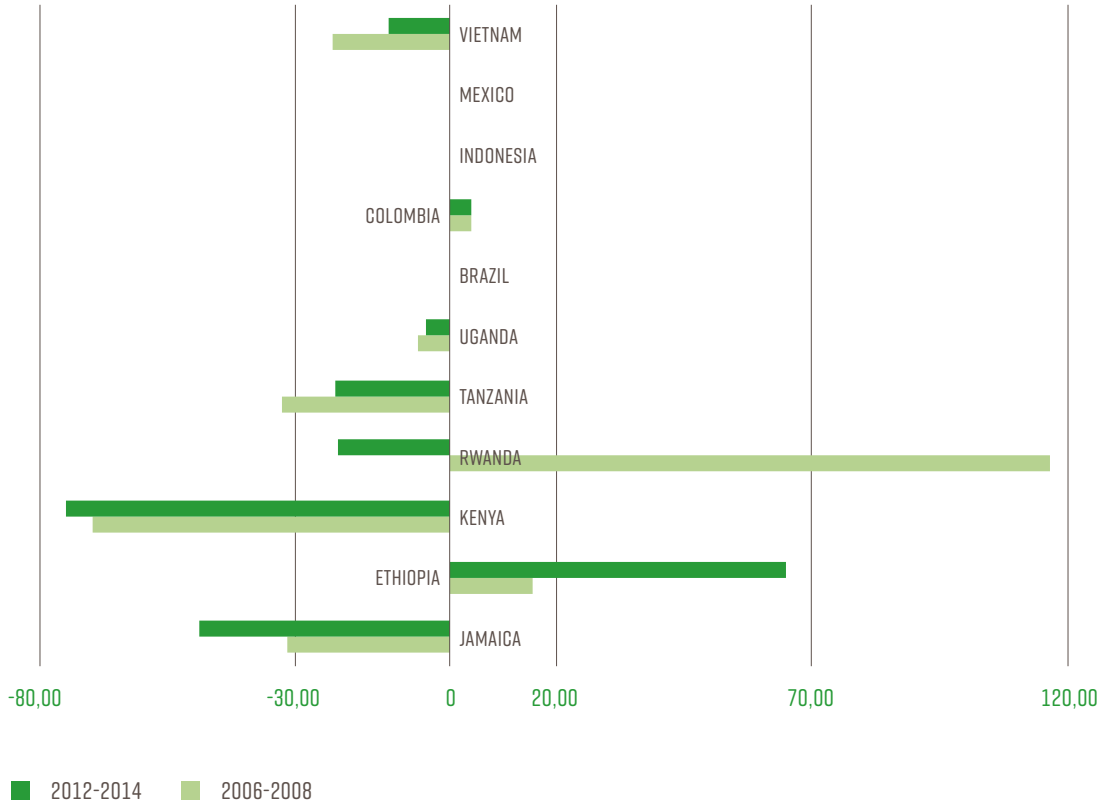
[27] One of the largest coffee farmers, cultivates 5,000 acres of Jamaica Blue Mountain Coffee land, also does first-stage processing. Privatized in 2013.

BOX 5: NEGATIVE PRICE SUPPORT FOR COFFEE IN JAMAICA AND OTHER MAJOR EXPORTERS

The indicators demonstrate implicit taxation of some exported commodities in Jamaica. It is not uncommon for exported crops to demonstrate negative support. In this box, the NRP values for an exported commodity (coffee) are compared across the world. The NRP indicator is selected for comparison, as it ensures the consistency of the application of the methodology across different sources. NRP is a ratio of the price gap to the reference price, expressed in a percentage form. It is equal to zero if the price gap is considered to be the result of the non-policy effects. The chart below demonstrates NRPs for several leading coffee exporters. While in LAC countries, support to coffee producers varied between zero and slightly positive, other major coffee exporters, competing with Jamaica internationally, i.e. Vietnam, Tanzania and Kenya, also implicitly tax their coffee farmers. In most of those countries, there is no formal export restriction or export taxation. In some countries, there is a formal tax payable by coffee exporters (i.e. 1% tax to fund research in Kenya, CIB tax in Jamaica), but it is much smaller (in absolute value) than the negative NRP.

It is worth noting that implicit taxation is not necessarily an obstacle for development or growth. The annual growth rate of coffee production in Vietnam since 1990 was 12.8% (OECD, 2015).

FIGURE 19: COFFEE NOMINAL RATE OF PROTECTION, %



Source: OECD PSE database[28] (for Indonesia, Vietnam, Mexico, Colombia, Brazil), FAO MAFAP database[29] (for Uganda, Rwanda, Tanzania, Kenya, Ethiopia).

[28] http://www.oecd.org/tad/agricultural-policies/producerandconsumersupportestimatesdatabase.htm

[29] http://www.fao.org/in-action/mafap/home/en/

2.3.1.3 – SUGAR SUBSECTOR POLICY ANALYSIS

DOMESTIC POLICY: ADAPTATION TO NEW EU IMPORT REGIME, AGRO PARKS, CANE EXPANSION FUND, RESEARCH AND EXTENSION

The Sugar Industry Control Act (1994) sets forth the regulatory framework for the sugar sub-sector. According to it, the Sugar Industry Authority (SIA) assigns sugar cane farmers to the sugar factories they deliver cane to. The Act also sets standards for the timing and quality of cane delivered to the factories and sets the conditions under which cane can be rejected.

The factories pay cane farmers a fixed share of the ex-factory price at a ratio of 62:38.

The Jamaica Country Strategy for the Adaptation of the Sugar Industry: 2006-2015 was introduced to deal with the impact of the EU ACP sugar regime reform. Revised in 2009 and expanded from 2015 to 2020, its goal is the sustainable development of sugar-dependent areas. It includes support to ethanol and rum production and rural development assistance for sugar-producing areas. Ethanol production from sugar is also part of the National Energy Policy (2009-2030).

In July 2007, the Sugar Transformation Unit (STU) was established to oversee the effective implementation of the Strategy. The STU provided financial support in the amount of J$285.0M to the Agricultural Investment Corporation to establish three Agro-Parks, for social, economic and infrastructure projects for sugar dependent communities, and for training.

The STU set up the Cane Expansion Fund (CEF) for an amount of J$1.77bn, which provides concessionary loans and grants for planting and replanting cane; land preparation and harvesting equipment; and installation of irrigation.

TRADE POLICY: LICENSES ARE REQUIRED FOR EXPORTS, HIGH DUTIES ON IMPORTS

Sugar exports require a license from the Sugar Industry Authority (SIA) and from the Trade Board. The SIA also oversees the import of raw sugar. Raw sugar for processing is imported duty-free. An import duty of 128% is imposed on refined sugar.

SCT IS HIGH, INDICATING PRICE AND BUDGET SUPPORT

The sugar subsector receives a lot of public support, both in the forms of budget transfers and price policy. MPS in the sugar subsector was very high, with farm-gate prices on average 65% higher than reference prices in the past three years. Sugar was Jamaica's only export crop not suffering from implicit taxation. However, due to high production costs and loss of preferential access to EU markets, sugar cane farmers rely on high budget transfers to remain profitable, and this situation is non-sustainable in the long-run.

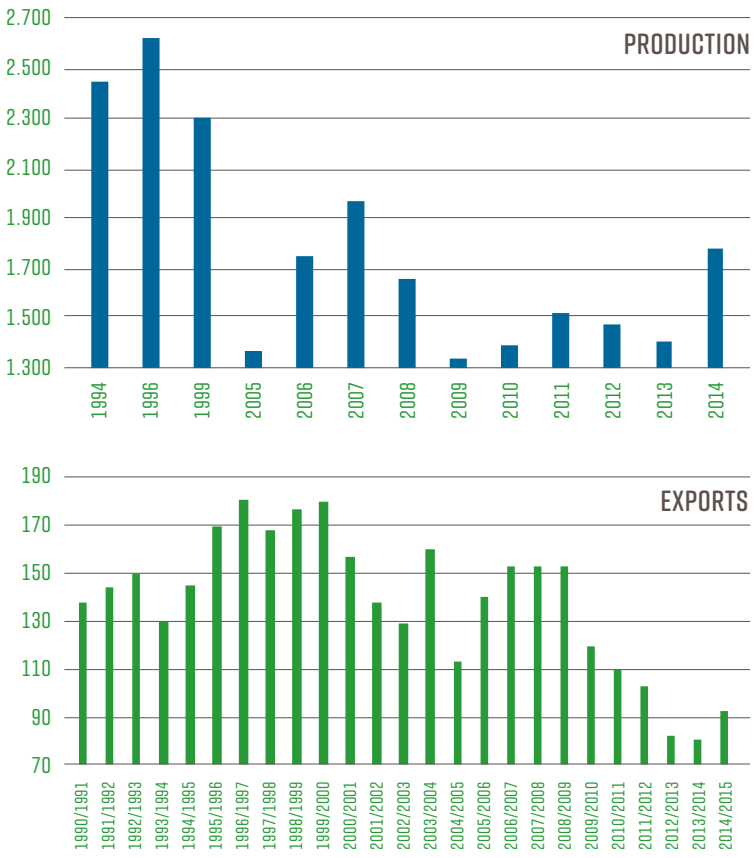
BOX 6: SUGAR SUBSECTOR CHARACTERISTICS

Sugar production in Jamaica has recently been on downward trend, with the only exception of 2014.

Both production and export volumes of sugar are declining. However, sugar remains Jamaica's most important export crop. There are six sugar factories currently operating, all of which were completely privatized (Figure 20).

The sugar industry is regulated by the Sugar Industry Authority, a subsidiary of the MOAF. Research and extension services are provided to cane farmers by the Sugar Industry Research Institute (SIRI) and the All-Island Jamaica Cane Farmers' Association.

FIGURE 20: JAMAICA'S SUGAR CANE PRODUCTION AND CENTRIFUGAL SUGAR EXPORT, THOUSAND TONS



Source: Sugar Industry Authority. USDA data at fas.usda.gov

2.3.1.4 – COCOA SUBSECTOR POLICY ANALYSIS

POLICY ACTIONS INCLUDE EXTENSION AND TRAINING, STRENGTHENING THE FARMERS' ASSOCIATION, AND DISASTER RELIEF

Several donor-financed projects targeted the cocoa subsector:

- ACDI/VOCA implemented a project for improving the production and marketing of cocoa.
- USAID, through the Marketing and Agriculture for Jamaican Improved Competitiveness (MAJIC) project, is pioneering the expanded use of the Farmer Field School (FFS) extension and farmer training approach, in collaboration with RADA. The FFS involves a two-step process which begins with the training of trainers (TOT) or facilitators, who in turn lead or facilitate the training sessions for the farmers.
- RECREATE (Re-Engineering the Cocoa Rural Economy through Agro-processing, Eco-Tourism and Entrepreneurship) project financed by the European Union (EU) in 2012 aimed at assisting young people in cocoa-producing regions, and included measures to strengthen extension services and improve operational efficiency.

The Government contributed $13 million to provide fertilizer and other rehabilitation assistance to farmers following Hurricane Sandy.

THE COCOA INDUSTRY BOARD IS A MAJOR PLAYER IN THE COCOA VALUE CHAIN

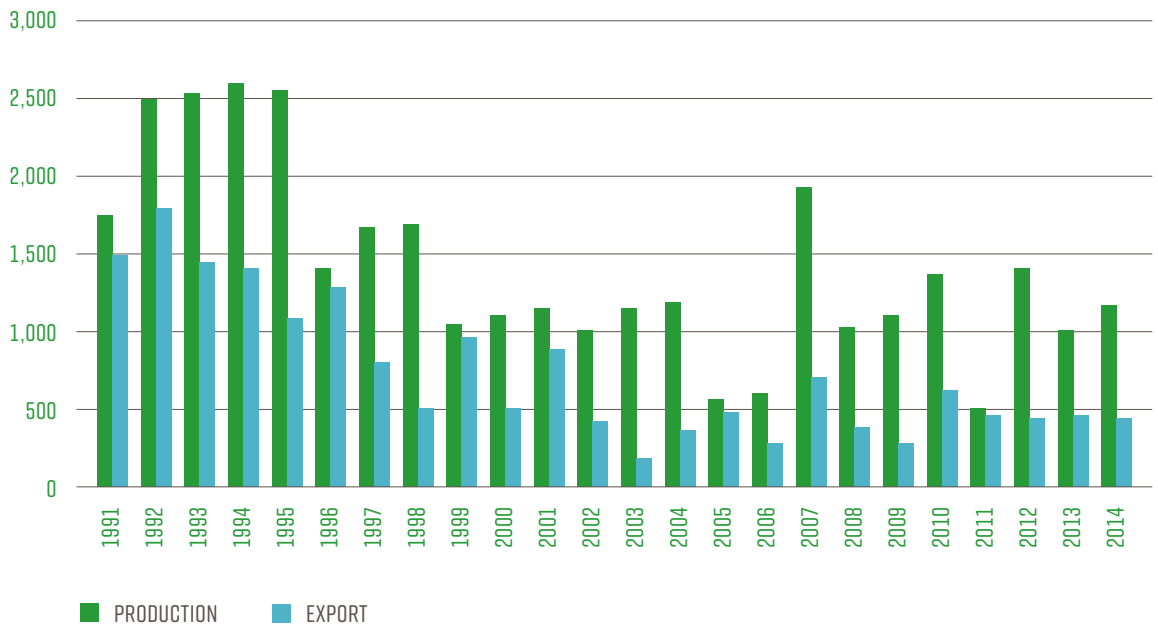
The Cocoa Industry Board (since 1957) provides technical support to farmers, purchases wet beans from them, performs processing services, and acts as a sole marketing agency of dry cocoa beans. It is now undergoing restructuring (see Section 1.3). The Cocoa Industry Board owns a cocoa farm and processing facilities, but the Government plans to privatize those assets and terminate its market activities. Until 2008, the Cocoa Industry Board was responsible for the entire chain of post-harvest operations including fermentation, drying, export, and marketing. Currently, farmers supply their harvest to the Cocoa Industry Board, mainly through middlemen. Cocoa farming is only marginally profitable (Figure 23).

BOX 7: COCOA SUBSECTOR CHARACTERISTICS

Jamaican cocoa is a premium product, but the profitability of its farming is very low.

Jamaica produces high-quality cocoa, which is sold internationally at premium prices. Cocoa is mostly produced by small farmers, and the profitability of cocoa farming is low. The main export markets are the EU, the UK and the US. The cocoa industry is currently recovering from the impact of Hurricane Sandy.

FIGURE 21: COCOA PRODUCTION AND EXPORT IN JAMAICA, TONS



Source: Production before 2005 – FAOSTAT. 2005-2014 – MOAF. Export – UN Comtrade.

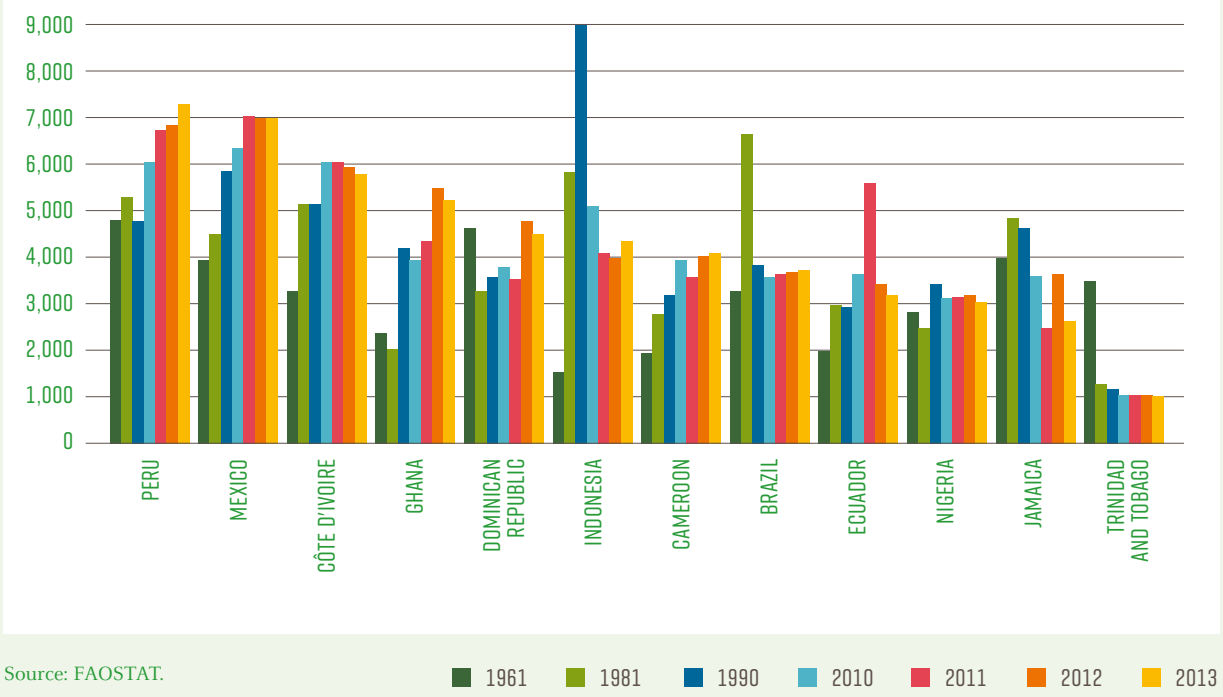
Cocoa productivity and profitability are low.

Yields of cocoa per ha in Jamaica are among the lowest in the world, with the exception of Trinidad and Tobago (Figure 22). Cocoa farming is highly labor-intensive. It is done mostly on small farms (of less than 5 acres) and the farmer population is aging: The average age of cocoa farmers is over 60.

A cocoa survey conducted by USAID in 2009 revealed low levels of technology, lack of fertilizer use, and low productivity of cocoa farming in Jamaica.

BOX 7: COCOA SUBSECTOR CHARACTERISTICS

FIGURE 22: COCOA YIELDS IN JAMAICA AND OTHER PRODUCING COUNTRIES, HG/HA



Source: FAOSTAT.

FIGURE 23: VALUE CHAIN ANALYSIS OF COCOA SUBSECTOR IN JAMAICA, 2014

FARM INPUTS	FARMERS	PROCESSORS/DEALERS	CONSUMERS
60% LABOR 40% MATERIALS: RAT POISON, FERTILIZERS	7,000 FARMERS ARE ENGAGED IN THE FARMING OF 8,800 ACRES OF COCOA	MIDDLEMEN/COLLECTORS COLLECT WET BEANS FROM FARMS AND SUPPLY TO THE COCOA INDUSTRY BOARD OR JCFA (SINCE 2008)	90% OF DRY/FERMENTED BEANS ARE EXPORTED. JAPAN USED TO BE MAJOR DESTINATION, NOW IT IS MOSTLY EU AND US (CHOCOLATE PRODUCERS, SUCH AS HERSHEY'S)
GOVERNMENT PROVIDES EXTENSION AND TRAINING SERVICES, FERTILIZERS, FARM REHABILITATION (AFTER SANDY); EU SUPPLIED SEEDLINGS	COCOA INDUSTRY BOARD SETS FARM-GATE PRICE	COCOA INDUSTRY BOARD OWNS 4 PROCESSING FACILITIES (IN HANOVER, ST MARY, CLARENDON AND KINGSTON)	COCOA INDUSTRY BOARD AS A MARKETING AGENT NEGOTIATES EXPORT PRICE
COSTS OF INPUTS: 85-100% OF THE FARM-GATE PRICE	FARM-GATE PRICE IN 2014: 200,000 J$/TON OF WET COCOA (2,000 J$ PER BOX) VALUE ADDED: 0-15% OF FARM-GATE PRICE	CESS (LEVY) TO COCOA INDUSTRY BOARD: 60 J$ PER BOX	EXPORT PRICE IN 2014: 3,642 US$/T OF BEANS

Source: Cocoa Industry Board.

COCOA INDUSTRY BOARD PRICING POLICIES UNFAVORABLE TO FARMERS

In 2008, the Jamaica Cocoa Farmers' Association (JCFA) was established in order to protect farmers' interests and negotiate more favorable prices for farmers when buying cocoa for export: While the JCFA pays farmers J$2500 per box, the Cocoa Board pays farmers between J$1800 and J$2000 per box.

THE NET EFFECT OF PUBLIC POLICY, MEASURED BY SCT, IS NEGATIVE

The SCT estimations indicate that the Cocoa Industry Board is the main beneficiary of the favorable situation in the world markets, where prices increased considerably in 2014. The price regulations by the Cocoa Industry Board disrupt price transmission to the farm-gate level. While the cocoa subsector has a lot of potential, despite the extension and training services offered by the government and donors, the cocoa farmer returns remain low. Continued efforts to improve technology, combined with the deregulation of the cocoa trade and cocoa prices will likely increase the sub-sector's attractiveness to investors and make it more resilient to climate events and price shocks.

2.3.1.5 – ORANGES SUBSECTOR POLICY ANALYSIS

GOVERNMENT'S FUNCTIONS INCLUDE INFORMATION DISTRIBUTION AND CERTIFICATION

In 2011, the Government of Jamaica, in cooperation with the Food and Agriculture Organization (FAO), launched a US$480,000 program to fight citrus greening. FAO provided technical assistance for setting up the nurseries for production and distribution of healthy trees and improving diagnostic capability and assistance in educating farmers and the public.

The citrus subsector remains extremely vulnerable to plant diseases. They are often incurable and lead to the destruction of trees. Continued cooperation with FAO and the Caribbean Agricultural Research Development Institute in fighting and managing citrus diseases, as well as general improvement of operations' practices, will help the subsector realize its strong potential.

Farm-gate prices of oranges during the period of study were considerably lower than international reference prices, but since the direct policy effect that could cause such a difference was not revealed, the policy effect is considered to be neutral.

BOX 8: ORANGES SUBSECTOR CHARACTERISTICS

Citrus Greening disease is the main challenge.

Citrus production has increased compared to the 1990s, but has been declining steadily since 2010, mainly due to citrus greening disease. Orange exports have also declined (Figure 24).

The subsector is administered by two organizations: the Jamaica Citrus Protection Agency, which administers the industry's mandatory[30] Citrus Propagation Certification Programme (since 1998) and provides advice and assistance to citrus growers; and the Citrus Growers Association (CGA), established in 1944 (involved in commercial farming operations and owner of 96% of the Jamaica Citrus Growers Limited (JCG) and a processing company).

FIGURE 24: JAMAICA'S CITRUS FRUITS PRODUCTION AND EXPORT, TONS

Source: MOAF, UN Comtrade.

[30] Under the Plants Quarantine Act.

2.3.1.6 – NON-TRADITIONAL EXPORT SUBSECTORS

ZERO SCTS IN NON-TRADITIONAL EXPORT SUBSECTORS

Yam was the only crop that demonstrated good price transmission from world to domestic markets, an indication of strong value chains with good market integration. While the farm-gate prices were lower than reference prices, the difference was within the marketing margin. We can therefore conclude that the effect of agricultural price policy was neutral for yams.

Sweet potato producers, on the other hand, received farm gate prices which were not affected by changes in international prices, and during the period of study, farm-gate prices were significantly lower than international prices. Although this situation may indicate that government policy actions or lack of actions are creating obstacles to exports, in the absence of explicit export restrictions or taxation, the MPD was set to zero and SCTs demonstrate neutral policy effect.

Producers of tomatoes received slight support from agricultural policy. Pineapples saw a negative price gap, but since both fresh pineapples and pineapple juice are imported in larger quantities than exported, and the sub-sector is protected by an import duty, the MPD was set to zero, as the price gap is not attributable to policy.

2.3.1.7 – LIVESTOCK SUBSECTOR POLICY ANALYSIS

SUPPORT ALONG THE VALUE CHAIN INCLUDES DUTY-FREE IMPORT OF FEED

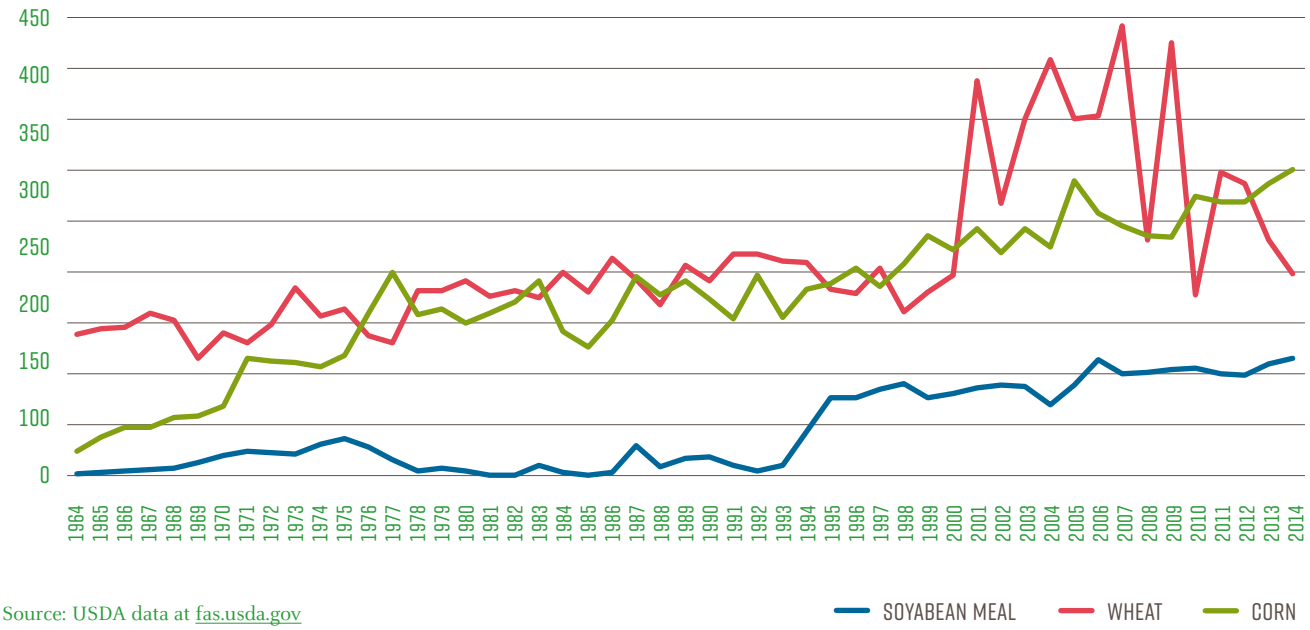
Animal feed, mostly imported, is relieved from duties and exempted from GCT (the Government attempted to introduce GCT on feed meal in 2012, but promptly removed it after protests from the pig industry). Imports of soybean meal and corn continue to increase (Figure 26).

FIGURE 25: POULTRY VALUE CHAIN IN JAMAICA, 2014

FARM INPUTS	FARMERS	PROCESSORS/DEALERS	CONSUMERS
BROILER FEED: 60% CORN, 30% SOYBEAN MEAL, 10% MISCELLANEOUS. COMPANIES PROVIDE FEED, CHICKS, SERVICES AND OTHER TYPES OF SUPPORT	2 COMPANIES: 1) JAMAICA BROILERS: 65% MARKET SHARE 2) CARIBBEAN BROILERS: 35% MARKET SHARE 55 MILLION BIRDS; OUTPUT: 110 MILLION TONS. BOTH CONTRACT FARMERS TO SUPPLY CHICKEN		25% HOSPITALITY SECTOR 65% WHOLESALERS 10% RETAILERS (HIGHER INCOME NEIGHBORHOODS)
FEED IS PRODUCED INHOUSE BY JAMAICA BROILERS CARIBBEAN BROILERS USE IMPORTED FEED (DUTY AND TAX-FREE)	FARM-GATE PRICE IS NOT SURVEYED BY MOAF, CONSIDERED A COMMERCIALLY SENSITIVE INFO		IMPORT, ONLY PARTS FROM US. TARIFF: 260%
COSTS: CHICAGO BOT+10%	FARM-GATE PRICE IS NOT SURVEYED BY MOAF, CONSIDERED A COMMERCIALLY SENSITIVE INFO. INSPECTION SERVICES AND CERTIFICATION: <5% STORAGE AND HANDLING: 20% PACKAGING: 14-20% / PROCESSING COSTS: <10%		TRANSPORTATION: AVERAGE DISTANCE 150 KM COSTS: 30 US$/TON PROFITABILITY: 8-15% WHOLESALE PRICE IN 2014: $120 PER LB

Source: interview with market participants.

FIGURE 26: JAMAICA'S IMPORT OF WHEAT, CORN AND SOYBEAN MEAL, THOUSAND TONS



Source: USDA data at fas.usda.gov

BOX 9: LIVESTOCK SUBSECTOR CHARACTERISTICS

The output of the livestock subsector is stagnating, with the exception of poultry.

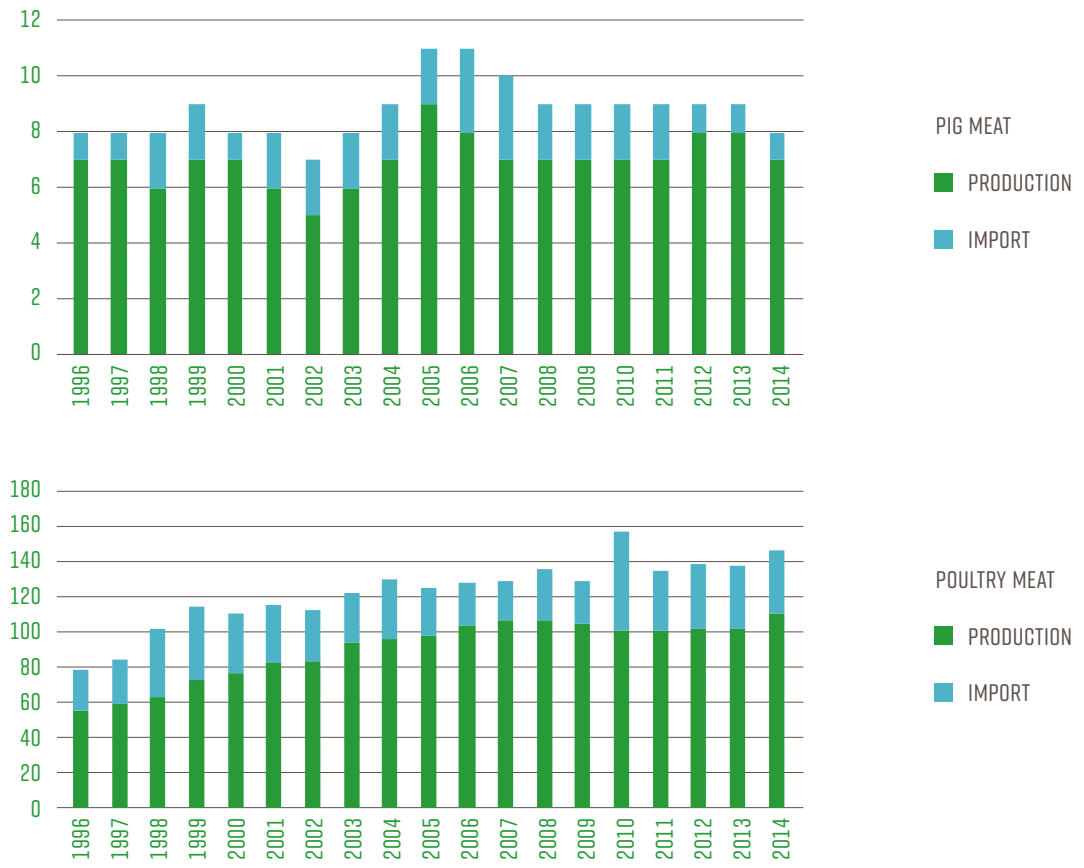
Poultry production is the leading livestock subsector in Jamaica, followed by pork. Domestic production of livestock is not sufficient to fulfil the demand; and about 10% of pork and 25% of poultry consumed is imported (Figure 27).

The poultry subsector is vertically integrated and dominated by two large companies: Caribbean Broilers and Jamaica Broilers, which have significant market power.

The Caribbean Poultry Association was established in 1999 to promote Caribbean broiler and egg production, improve competitiveness, and promote public policy support.

Both pigmeat and poultry subsectors are protected by customs duties, additional stamp duties, and sanitarian requirements on meat imports. However, this policy had different effects on these two subsectors.

FIGURE 27: JAMAICA'S PIGMEAT AND BROILER PRODUCTION AND IMPORTS, THOUSAND TONS



Source: MOAF, UN Comtrade.

POULTRY AND EGG PRODUCERS SUPPORTED BY MARKET PRICE SUPPORT, BUDGET TRANSFERS

The poultry subsector benefits from unprecedented import protection, with total tariff at the level of 260% (CET and ASD), reflected in %SCT of 65% and MPS of over J$18 bn.

High levels of support for poultry are in line with the government's goal of import substitution and have resulted in a growing and profitable vertically integrated subsector. While the poultry subsector is currently strong and growing, it is protected from international competition by prohibitive import tariffs. There are therefore, no incentives for increasing its competitiveness, which makes the subsector vulnerable should the protection be removed in the future. Additionally, high levels of support to producers—two financially stable and vertically integrated companies—is provided at the expense of domestic consumers, who pay higher-than-international prices.

The reduction of market price support for poultry—specifically, a decrease in the import duty on poultry—would have fiscal implications, as domestic production would likely decline in the short-term and budget tax revenues from employment-based taxes would decrease.[31] At the same time, it would increase budget revenues from import tariffs by increasing volumes,[32] and, if implemented gradually and combined with general services support measures, it would enhance competitiveness and ensure long-term growth. At the same time, reduced price support would benefit consumers (see section 2.3.4).

THE EFFECT OF PRICE POLICY ON THE PORK SUBSECTOR IS NEUTRAL

The price gap in the pigmeat subsector is negative, indicating implicit taxation of the producers. The negative price gap in pork production is likely caused by the high transaction costs of collecting pigmeat from small and geographically dispersed producers. Since

[31] One-commodity supply-demand model shows that the removal of ASD for poultry will result in 29% production decline (IFPRI Food Security Portal http://www.foodsecurityportal.org/supply-demand-model-imported-commodity-part-2-import-tariffs, calibrated based on 2014 Jamaica PSE data and elasticities in FAO, 2013). Since this model assumes perfect substitution between imported and local products, which is not the case in Jamaica's poultry subsector, the adverse effect of tariff reduction would be less pronounced than that forecasted by the model.

[32] By 58%, according to the model described above.

this issue cannot be attributed to an explicit public policy intervention, the price support of pork is considered to be zero. The PSCT for pork reflects budget transfers mainly in the form of low-interest rate loans.

2.3.1.8 – DAIRY SUBSECTOR POLICY ANALYSIS

GOJ IS MAKING EFFORTS TO REVITALIZE THE DECLINING DAIRY SUBSECTOR, BUT THE POLICY HAS LIMITED IMPACT

The Jamaica Dairy Development Board was established in 2009 to develop a regulatory framework to revitalize the dairy subsector, ensure quality, regulate trade, and distribute information.

Support is provided to the dairy sector mainly through the revitalization of the dairy sub-sector program, adopted in 2008 to increase dairy farm productivity in order to increase local production of milk from the current 14 million liters to 31 million and 55 million liters by 2012 and 2017, respectively[33]. Although the production decline slowed after adoption of the program, it continues. Fewer than 12 million liters of milk were produced in 2014, far below the project's goal and lower even than when it was launched.

Currently milk is not part of the School Feeding Programme. Introducing local milk into the program, as is now being discussed by the GOJ, would not only benefit consumers, but expand the market for local milk, which will benefit dairy producers.

BOX 10: REVITALIZATION OF THE DAIRY SUB-SECTOR. PROJECT'S COMPONENTS

- **LOAN FACILITY** The project provides a working capital loan facility through the Development Bank of Jamaica/National People's Co-operative Bank (DBJ/NPCB) at an annual interest rate of 5% for pasture rehabilitation and herd improvement. The fund initially received J$50 million in budgeted funds.
- **INVESTMENT FUND** A fund (initial size J$10 million, managed by DBJ) for public participation in vertically integrated enterprises. Its goal is to support value chain integration.
- **IMPORT OF CATTLE GENETICS** Another J$10 million of budget funds allocated for import of breeding embryos.
- **RE-ESTABLISHMENT OF A NATIONAL PROGENY TESTING SCHEME FOR THE JAMAICA HOPE BREED OF DAIRY CATTLE**
- **TRAINING FUND (WITH RADA)**
- **GRANTS TO PRODUCER ORGANIZATIONS**

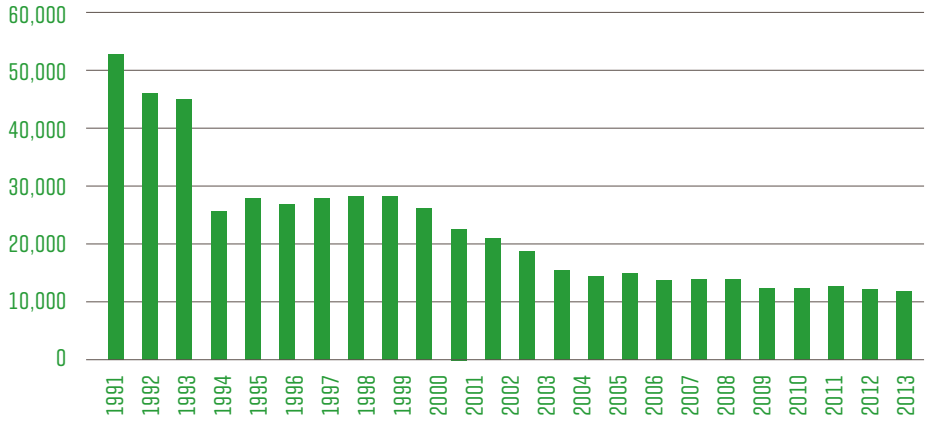
[33] http://www.jddb.gov.jm/index-%20services.html

BOX 11: DIARY SUBSECTOR CHARACTERISTICS

Challenges: declining output, strong competition from imports.

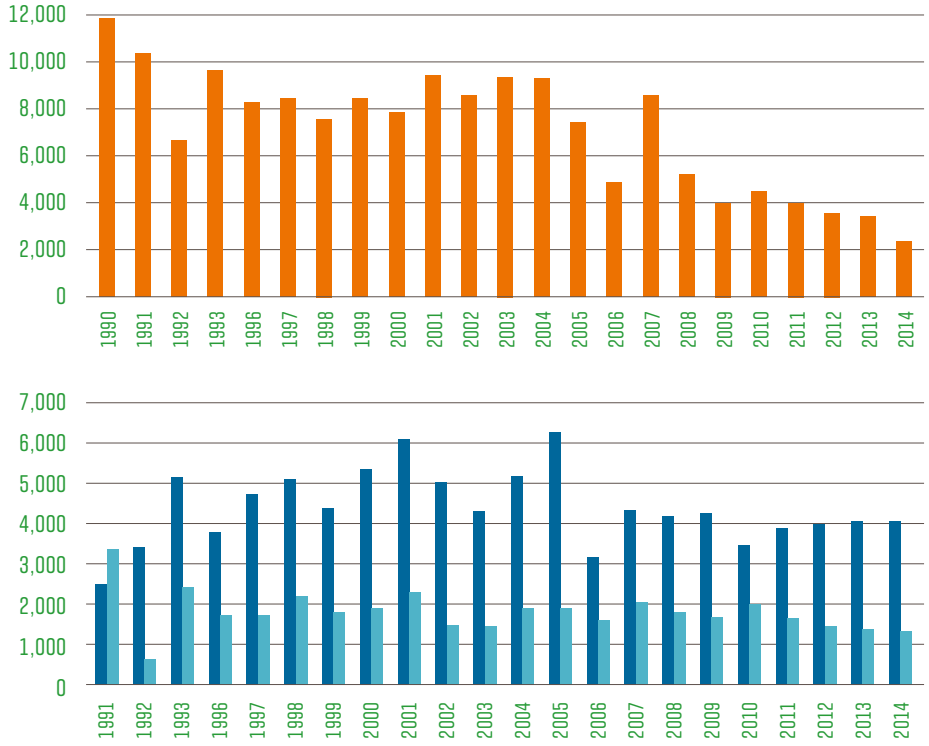
Cow milk production has been declining considerably, dropping 60% over the past 15 years. At the same time, imports of milk, cream and butter decreased as well, an indication that competition from imports is not the main reason for the decline in domestic milk production (Figure 28, Figure 29).

FIGURE 28: JAMAICA'S COW MILK PRODUCTION, TONS



Source: FAOSTAT.

FIGURE 29: JAMAICA'S IMPORT OF MILK & CREAM (CONCENTRATED & SWEETENED), AND CHEESE & BUTTER (TONS)



Source: UN Comtrade data at comtrade.un.org

POLICY EFFECT ON MILK PRODUCERS IS NEUTRAL

Milk producers were supported until 2012. Since then, the price gap has become negative due to an increase in reference prices that was not transmitted to local markets. As there is no explicit policy in place that could lead to taxation of the dairy producers, the price gap was set to zero,[34] resulting in MPS of zero. Since there were no budget transfers to individual producers, PSCT was set to zero as well, meaning the effect of agricultural policy on milk producers is neutral.

2.3.1.9 – EFFECTIVE RATE OF PROTECTION ESTIMATION FOR SELECTED COMMODITIES

The effective rate of protection provides additional information on the level of support by commodity by including the effect that support has on farming inputs. A positive ERP means that the returns on inputs are potentially higher than in the hypothetical situation of the absence of the subsidy. If ERP is negative, that means that the policy has a negative effect —potential returns on inputs would be higher in a non-policy situation. The ERP methodology is limited because it does not take potential input substitution into account. Still, it is useful as an indication of the effect policy has on input markets for agricultural producers.

Information for the ERP estimates was provided by the Ministry of Agriculture, commodity boards, and interviews with producers (see value chain descriptions in Figure 18, Figure 23, and Figure 25). Due to the limited availability of data on domestic and reference prices of purchased inputs, explicit tariff information was used to estimate input price distortions.[35] Budget transfers for input support were also included.

The commodities for which detailed value chain studies were conducted were included in the ERP analysis: coffee and cocoa as export commodities, and poultry as an import-competing subsector.

The set of inputs included in the analysis was determined by the available information on the cost structure. The following purchased inputs were included in the analysis: for coffee, fertilizers, fungicide, and herbicide; for cocoa, fertilizers; and for poultry, corn and soybean meal.

[34] As recommended in OECD, 2010 p.56.

[35] As described, for example, in (Valdes, 2013).

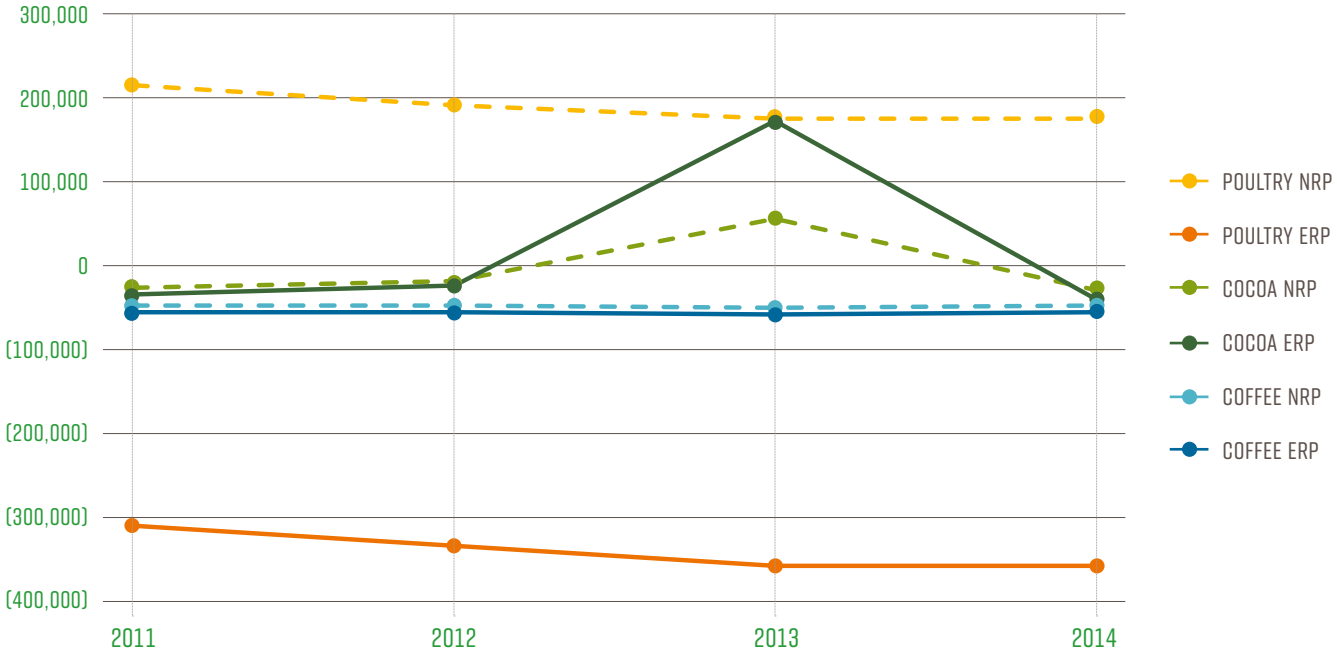
NRP for inputs is constructed from border protection (import duties, stamp duties, additional fees, GCT). The calculation of input NRP from the actual border protection has limitations. Specifically, it does not take into account quantitative restrictions, price regulations, or the effects of state monopolies on resource markets. However, these types of policy actions are not common for input markets.

In Jamaica, the policy affecting farming inputs has two components: trade policy and budget transfers. Trade policy provides exemptions to GCT and ASD for imported agricultural products and purchased inputs (fertilizers and chemicals). The CET import duty is zero for the inputs analyzed.

The analysis below considers GCT exemption (16.5%) as a subsidy on inputs, as without it the costs of production would be higher and the returns on inputs lower. Poultry producers also benefit from exemption from the 70% ASD for corn and soymeal (which together account for about 60% of total poultry production costs). However, since such ASD is a part of agricultural policy, it was not included in the non-policy (reference) value added.

The results of ERP estimations for coffee, cocoa and poultry are provided in Figure 30. NRP for the same commodities are included for comparison as dashed lines.

FIGURE 30: EFFECTIVE RATE OF PROTECTION AND NOMINAL RATE OF PROTECTION, JAMAICA, 2011-2014 (%)



Source: authors' estimations.

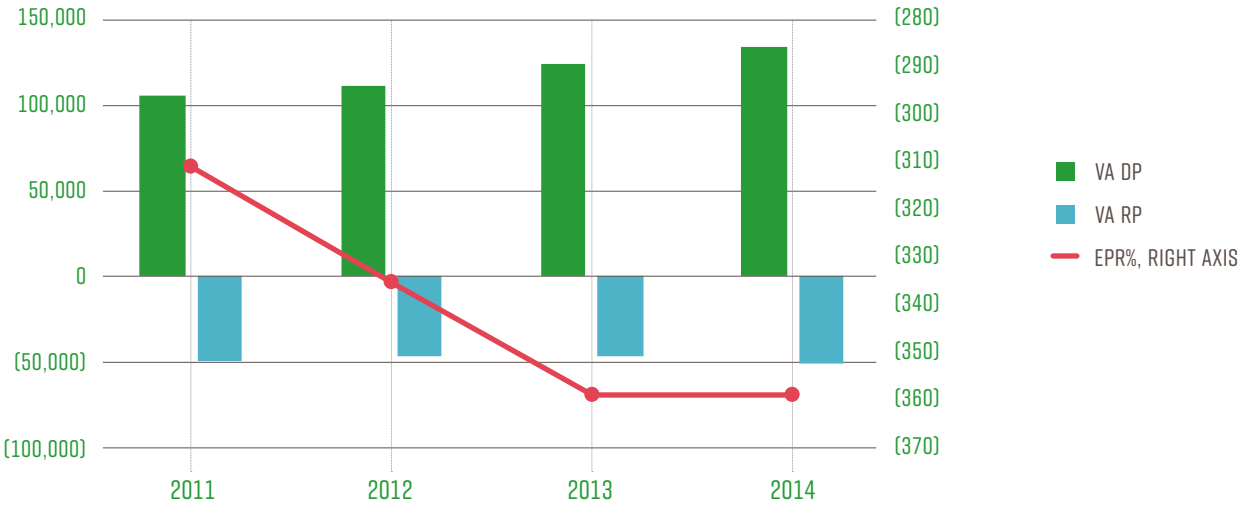
In Jamaica, the information provided by the ERP is not substantially different from what can be learned from other indicators of support by commodity because there is no border protection in place for the majority of inputs, and the support is concentrated at the farm level of the value chain.

ERP for coffee is negative in all years and slightly lower than coffee NRP, indicating that without the tax exemption for purchased inputs, the level of implicit taxation of the coffee subsector would be slightly more pronounced.

ERP for cocoa only differs from its NRP in 2013, when the difference in value added was more substantial than the level of commodity support.

NRP and ERP values for poultry are close in absolute terms, but the ERP is negative, meaning that if the support for both output and inputs for poultry were removed, the incentives for poultry production would become negative. As reference prices are lower than the prices received by the poultry producers in Jamaica (because of the support to producers), and the reference input prices are higher than the prices paid by the producers (because of the GCT exemption), the reference (non-policy) value added is negative: Total costs of purchased inputs are worth more than the total reference value of production (Figure 31). Therefore, poultry producers are protected both at the farm-gate level and (to a smaller extent) by input support. Negative reference value added demonstrates that the cost of the imported feed used in poultry production is very high (as opposed to PSE and NRP, negative ERP does not indicate taxation of the subsector). In the non-policy scenario, the cost structure of the poultry subsector would have to adjust and innovations would have to be introduced in order to achieve positive returns without the support it enjoys currently.

FIGURE 31: POULTRY VALUE ADDED NET OF TRADABLE INPUTS IN DOMESTIC AND REFERENCE PRICES, JAMAICA, 2011-2014, J$ MILLION



Source: authors' estimations.

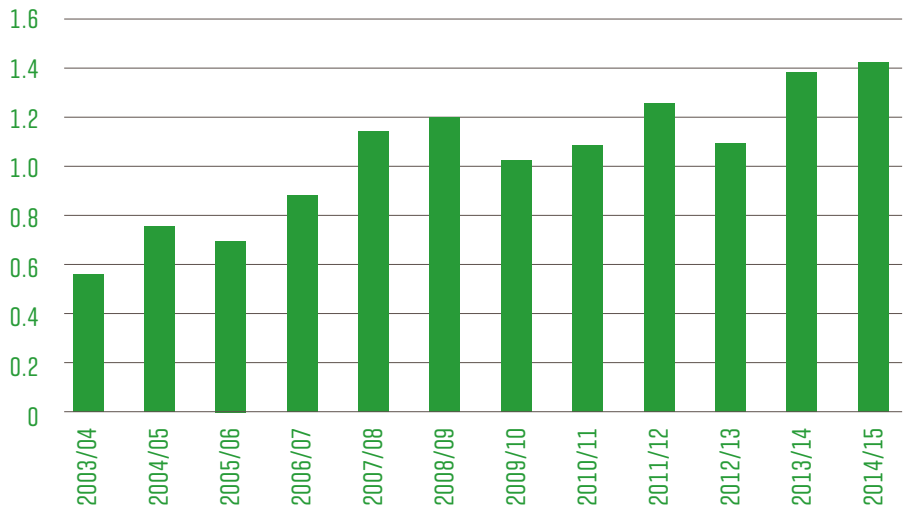
2.3.2. BUDGET TRANSFERS TO INDIVIDUAL PRODUCERS

The PSE methodology is a very useful instrument for the analysis of budget transfers to agriculture, as it presents budget spending in a transparent format useful for the analysis of the magnitude and direction of budget transfers, policy changes over time, and international comparisons.

SHARE OF AGRICULTURE IN BUDGET IS LOW

Agriculture is not a major component of total government expenditures in Jamaica. Although its share in total budget is growing slightly, it is still under 1.5% (Figure 32).

FIGURE 32: SHARE OF NET MOAF EXPENDITURES IN TOTAL BUDGET OF JAMAICA



Source: Ministry of Finance & Planning, Jamaica.

DONOR'S SUPPORT REDUCED

Jamaica's budget consists of three major components: recurrent expenditure, Capital A expenditures, and Capital B expenditures[36]. Recently, there have been significant changes in the sources of financing for agricultural policy, as donor financing (Capital B) was significantly reduced in 2012/2013, and recurrent expenditures of the MOAF increased.

BUDGET CLASSIFICATION BY PROGRAM IS AN ADVANTAGE FOR PERFORMANCE EVALUATION

The main strength of the budgeting process in Jamaica is that budget expenditures are broken down according to program, with each program described in the annual budget documents, including its goals, budget, and achievements.

[36] Recurrent expenditures are required for fulfilling the requirements of the day-to day tasks performed by government institutions, such as salaries, maintenance of property, etc. Capital A covers financing of long-term projects, such as purchase and maintenance of equipment, road construction, etc., financed exclusively by tax revenues. Capital B expenditures include capital projects co-financed by bilateral or multilateral loans and grants.

FIGURE 33: STRUCTURE OF THE AGRICULTURAL BUDGET IN JAMAICA

Source: Ministry of Finance & Planning, Jamaica.

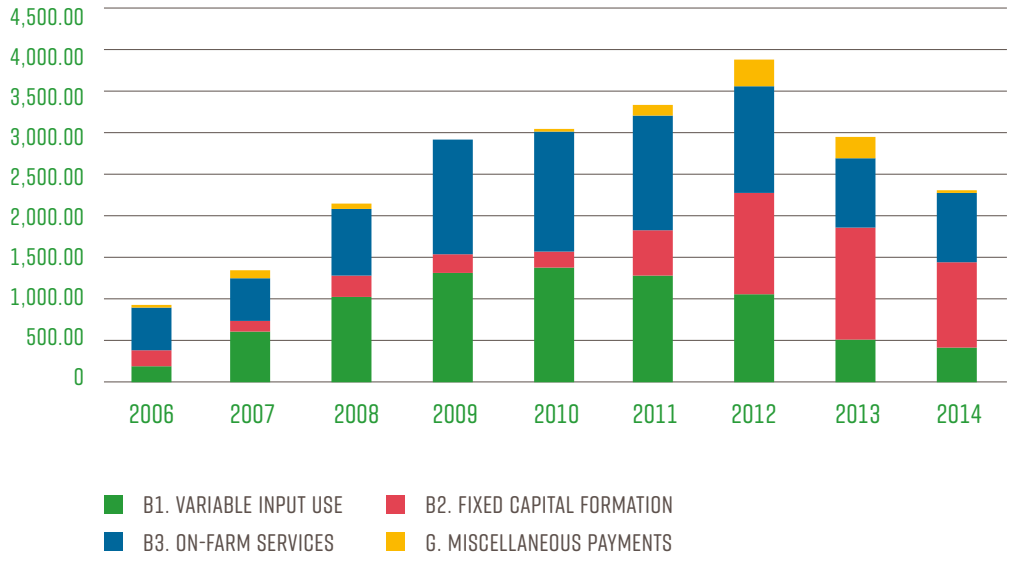
LARGE SHARE OF BUDGET SUPPORT PROVIDED IN MARKET DISTORTING INSTRUMENTS

From 40% to 60% of the budget transfers to agriculture were provided to producers individually (mainly in the form of input support, Figure 34). This type of support includes measures like variable input subsidies that are considered among the most distorting,[37] as they directly affect production costs, and therefore, farmers' production decisions.

Most support for variable inputs went to subsidize electricity for irrigation pumps, followed by support to the banana and the sugar subsectors. Support for fixed capital investments was provided in the form of grants to the Sugar Transformation Unit, as well as irrigation support. Support for on-farm services was provided through the MOAF's extension services.

[37] OECD defines the most-distorting support as support based on output and on variable input use without input constraints because such measures influence output and input choices made by farmers (OECD, 2001). While input support can be delivered in a non-distorting or minimally distorting form, we use this term as it is used in the OECD PSE database. It should be noted that support based on output, not used in Jamaica, is often more distorting than input-based support.

FIGURE 34: BUDGET TRANSFERS TO PRODUCERS INDIVIDUALLY, J$ MILLION



Source: authors' estimations based on Ministry of Finance & Planning data.

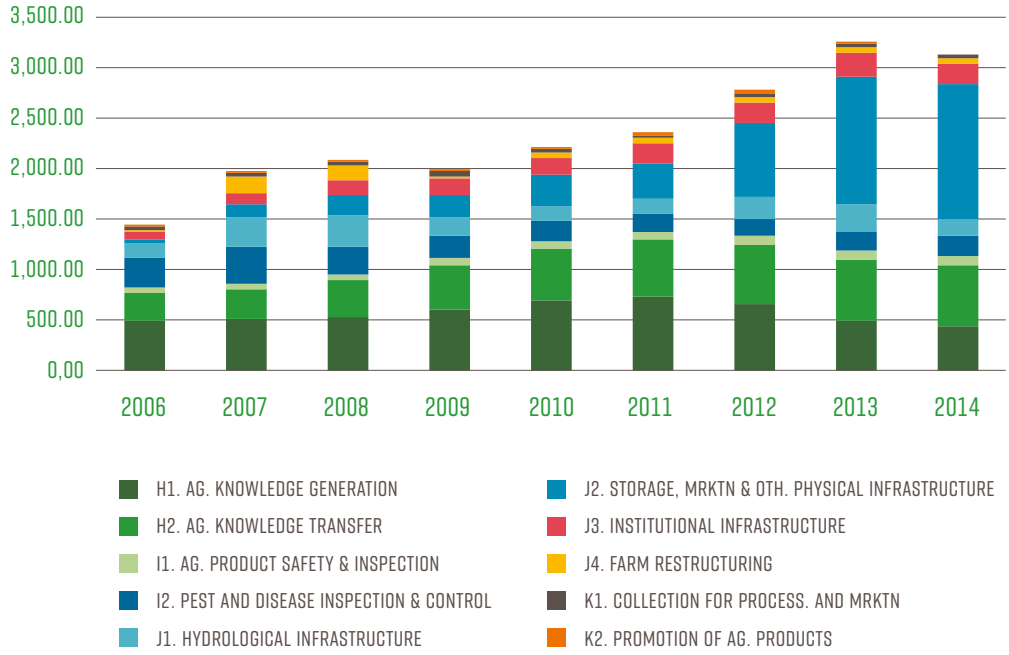
2.3.3. GENERAL SERVICES SUPPORT ESTIMATE

INFRASTRUCTURE DEVELOPMENT IS THE FOCUS OF SUPPORT TO GENERAL SERVICES

GSSE measures budget transfers for services provided to agricultural producers collectively (Figure 35). The largest portion of GSSE transfers is for physical infrastructure development (43% in 2014). These transfers have almost quadrupled since 2011. Next is transfers to disseminate agricultural knowledge (education and training, 19%) and agricultural knowledge generation.

Inspection services and food safety transfers account for 10% of the general services support. Infrastructure development transfers are granted mainly through the Sugar Transformation Unit. Support for irrigation development declined recently (5% of GSSE).

FIGURE 35: GSSE COMPOSITION IN JAMAICA, J$ MILLION



Source: authors' estimations based on Ministry of Finance & Planning data.

RESEARCH EXPENDITURES ARE DECLINING

The Research and Development department under the technical services directorate of the MOAF is responsible for research and development activities in Jamaica. Its goal is to improve the Jamaican agricultural sector's production and productivity. Financing for research decreased during the period of study (the share of agricultural knowledge generation in GSSE decreased from 31% in 2011 to under 15% in 2014).

INFRASTRUCTURE DEVELOPMENT IS CRUCIAL FOR THE COMPETITIVENESS OF AGRICULTURE

RADA is responsible for local rural development efforts and administers grants for rural development. The MOAF is responsible for maintaining farm roads and does so via RADA. The poor state of roads due to natural disasters and lack of financing increases transaction costs for agricultural producers and reduces competitiveness.

SEVERAL INFRASTRUCTURE DEVELOPMENT PROJECTS WERE IMPLEMENTED DURING THE PERIOD OF STUDY AND ARE INCLUDED IN THE GSSE

- The Rural and Parochial Roads Rehabilitation and Maintenance Project (EU) provided €2 million. Its goal was to improve rural living conditions and make it easier to bring agricultural production to market. The project's aim was to rehabilitate 30 roads during 2008-2010.
- The Post Tropical Storm Gustav Reconstruction project (USAID) aimed to rehabilitate farms and rural farm roads in 12 parishes and repair 40 schools.
- The Rural Diversification Programme is a part of the EU's banana support initiative and aims to boost rural development in banana producing parishes by creating jobs and income.

The agricultural sector's share of total employment in Jamaica is very high compared to in neighboring countries, and the trend in developed countries suggests that a decline in agricultural employment is inevitable. This study has not been able to identify any programs supporting non-agricultural income generation in rural areas, and this should be one of the priorities of any rural development efforts.

MARKETING AND PROMOTION SERVICES ARE PROVIDED TO FARMERS AS PART OF AGRICULTURAL POLICY

Marketing measures constitute less than 1% of total general services spending. However, GOJ seems to recognize the importance of support for agricultural commodities marketing and value chain strengthening, and of making market information available.

The IDB Agricultural Marketing Project (technical cooperation), worth US$100,000, was implemented in 2006-2010 with the aim of improving marketing opportunities for groups of farmers of non-traditional crops by developing better communication between producers and buyers and improving quality control and standardization.

The USAID-funded project "Marketing and Agriculture for Jamaican Improved Competitiveness:" (MAJIC) also has a marketing component: "Strengthening of Production, Processing & Marketing Linkages throughout value chains."

Vision-2030 includes measures for supporting Jamaica's nation brand development, such as strengthening the use of geographical indications (GIs), including identification of Jamaican GIs, establishing a GI registry, and registering Jamaican GIs. JAS supports the "Eat Jamaican" campaign to promote local production.

2.3.4. CONSUMER SUPPORT ESTIMATE

SUPPORT TO AGRICULTURAL PRODUCERS IS MAINLY FUNDED BY TRANSFERS FROM CONSUMERS

Negative national CSE in Jamaica (Figure 36) means that support to agricultural producers is mainly financed by transfers from consumers to producers of agricultural commodities. Budget transfers to consumers include a school meals program and research and development for the agri-processing industry.

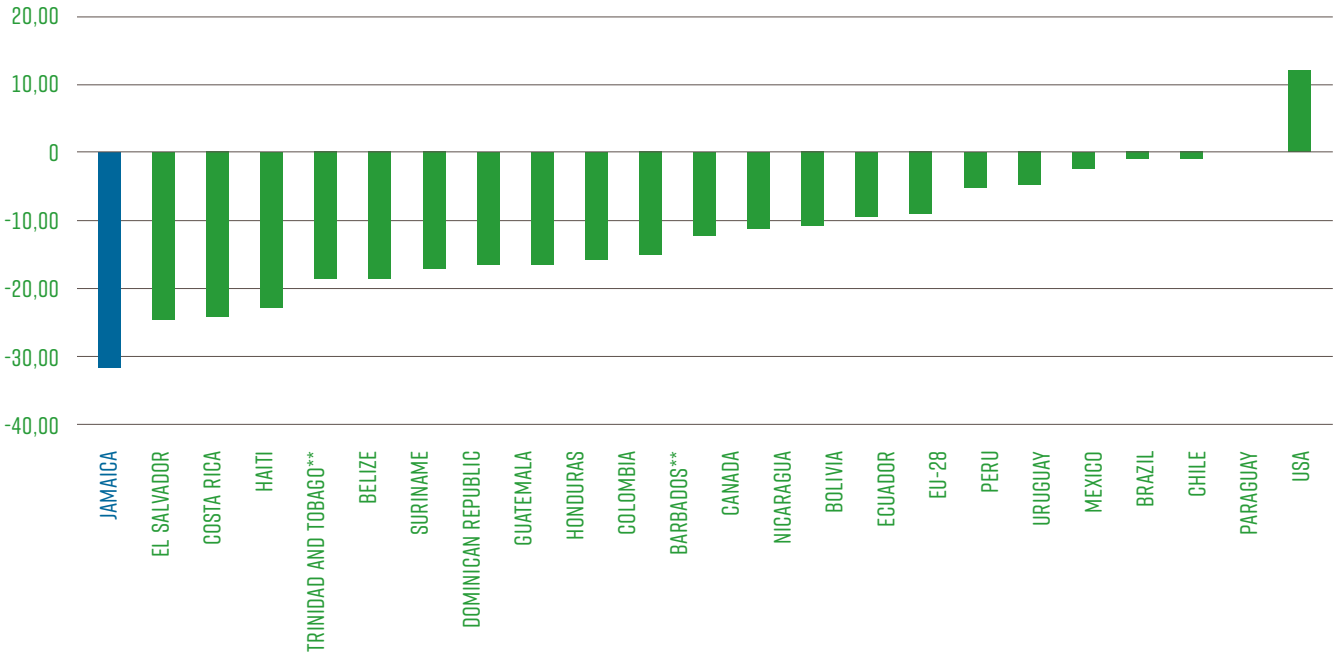
Consumers pay higher prices for local output as a result of government policy, which is damaging for low-income populations and limits demand. Transfers to consumers are not sufficient to compensate and therefore do not have the intended effect.

SOCIAL PROTECTION MEASURES MAY HAVE TO BE CONSIDERED TO COMPENSATE FOR THE EFFECT OF THE MPS, BUT WOULD BE COSTLY

Since poverty rates are increasing in Jamaica and the poorest households spend the highest share of their expenditures on food, additional social protection measures may have to be considered to compensate for the effect of the MPS on consumers. Thus in 2014, transfers from consumers to poultry producers amounted to nearly J$19 billion (with poultry being both the main contributor to CSE and Jamaicans' main source of protein). Total CSE accounted for (negative) 1.5% of GDP. Fiscal constraints make it impossible to fully compensate for the negative effect that agricultural policy has on consumers,[38] so social protection measures must be combined with a gradual reduction of price support. At the same time, demand-enhancing programs such as using locally produced milk in the School Feeding Programme will benefit both consumers and milk producers.

[38] A major social welfare program, PATH, amounted to 0.31% of GDP, and the School Feeding Program to 0.21% of GDP in 2012.

FIGURE 36: CONSUMER SUPPORT ESTIMATE IN JAMAICA AND OTHER COUNTRIES, AVERAGE VALUE FOR 2012-2014*



* OECD countries, Brazil, Colombia, Trinidad and Tobago, Dominican Republic 2013-15, Uruguay 2011-2013, Argentina, Costa Rica, Ecuador, Honduras, El Salvador 2010-2012, Guatemala 2009-2011, Nicaragua 2009-2010, Bolivia 2008-2009.

** Preliminary.

Source: authors' estimations.

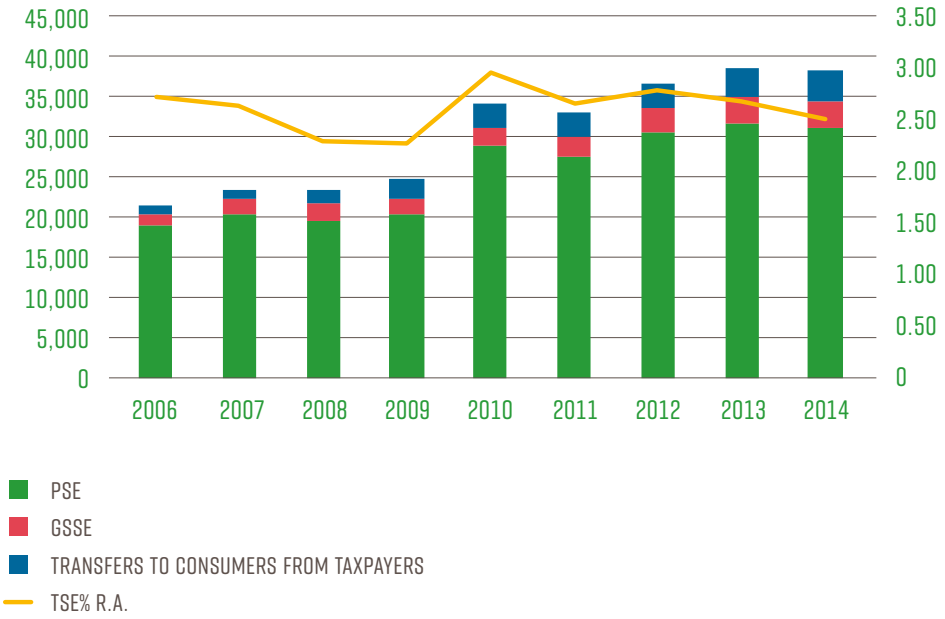
2.3.5. TOTAL SUPPORT ESTIMATE

The GSSE, PSE, and transfers to consumers from taxpayers are together called the Total Support Estimate (TSE) and include all transfers made under national agricultural policy. TSE% varied between 2.3% and 2.9% of the national GDP in 2006-2014 (Figure 37). PSE remains the main component of TSE in Jamaica, meaning that support to producers is mostly financed by consumers who pay higher prices for the farm output.

In OECD countries, budget transfers, especially those less distorting to trade, have been playing more of an important role over time. Thus, while during the 1980s MPS was the main support component for OECD countries, the use of decoupled payments, or payments not related to current production, input use, or commodity prices, is on the rise. Most developing countries are also following this trend, and we see some movement in this

direction in Jamaica, where the role of less distorting payments has increased. Since all budget transfers to individual producers in Jamaica are based on current input use and therefore not decoupled, the level of decoupled support is best measured by the share of GSSE in the TSE, which during 2012-2014 stood at 8.2%.

FIGURE 37: TOTAL SUPPORT ESTIMATE COMPOSITION IN JAMAICA, J$ MILLION

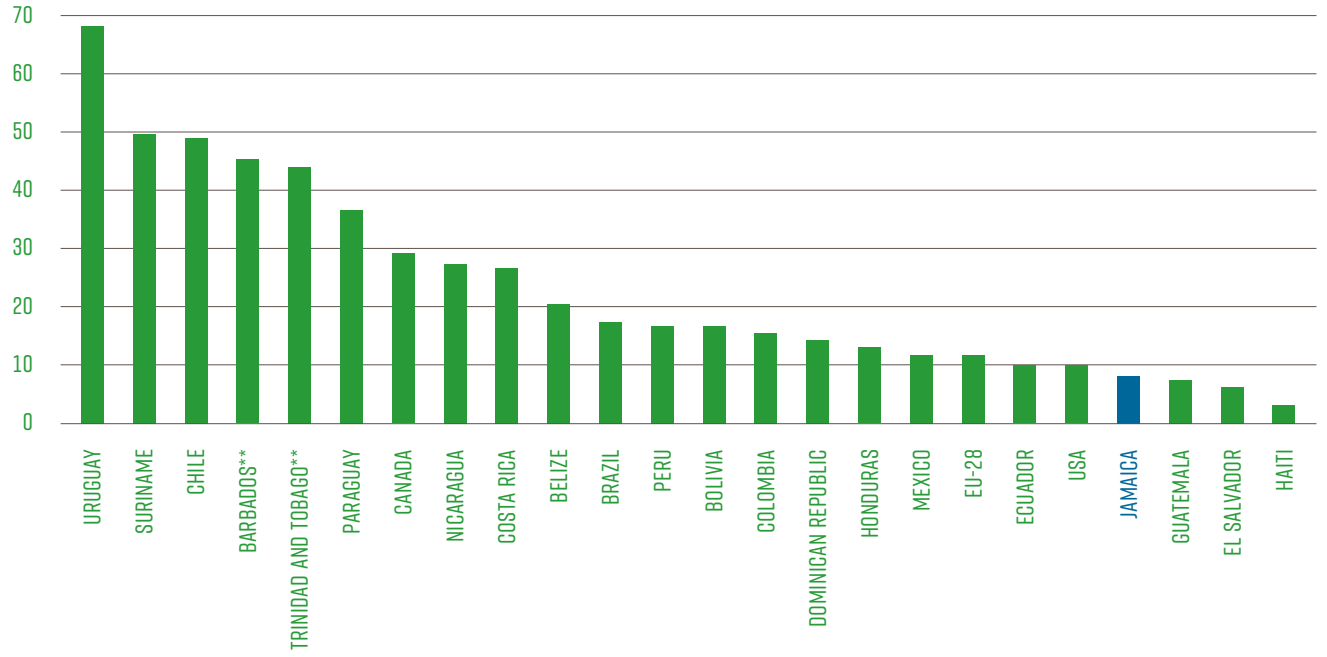


Source: authors' estimations.

The share of GSSE in Jamaica's TSE (8.2%), is just slightly lower than that of the US and the EU. However, in some Latin American and Caribbean countries the GSSE share of the TSE is over 40% (Chile, Suriname, Barbados, Trinidad and Tobago) and as high as 69% in Uruguay (Figure 38). As a recent regional study showed, general services support is less distorting and contributes the most to the agricultural sector's long-term competitiveness and growth.[39] The results show that a shift of 10 percentage points of the agricultural budget from private goods to general services while keeping total spending constant leads to an approximately 5% increase in value added per capita. To achieve the same increase would require an increase of approximately 25% or more in total spending while holding the mix constant.

[39] The IDB working paper (Anriquez, Foster, Ortega, Falconi, & De Salvo, 2016).

FIGURE 38: GSSE AS A PERCENT SHARE OF TSE IN JAMAICA AND OTHER COUNTRIES, AVERAGE FOR 2012-2014*



* OECD countries, Brazil, Colombia, Trinidad and Tobago 2013-2015, Dominican Republic, Uruguay 2011-2013, Argentina, Costa Rica, Ecuador, Honduras, El Salvador 2010-2012, Guatemala 2009-2011, Nicaragua 2009-2010, Bolivia 2008-2009.

** Preliminary.

Source: authors' estimations.

3. CONCLUSIONS AND RECOMMENDATIONS

Agriculture plays an important role in the economic development of Jamaica. However, fiscal resources for its support are limited, and therefore the efficiency and effectiveness of their distribution is crucial.

Some positive trends are evident in several subsectors of the agri-food sector in Jamaica. However, the sector's vulnerability to natural disasters, plant diseases, and external price shocks remain high.

The results of the PSE estimations in Jamaica suggest the following observations:

- **Market price support remains the main component of PSE.**
- **Overall protection as measured by PSE is moderate**, but it reflects a combination of very high protection of the poultry sector and implicit taxation of the coffee and cocoa subsectors.

- **Non-distorting support to general services increased**, which is a positive trend that lays the foundation for long-term growth.
- **Export licensing and other restrictions to exports lead to market monopolization** and implicit taxation of producers of exported goods.
- **Instead of protecting farmers from external price shocks**, cocoa and coffee commodity boards absorb marketing margins and prevent transmission of high international prices to the farm-gate level.
- **Low farm-gate prices in exporting subsectors open opportunities for international competitiveness** as long as value chains are improved, investment in hard and soft infrastructure is continued, and deregulation leads to a reduced role of the commodity boards.
- **At the moment, support to producers is provided at the expense of consumers**, who require protection to compensate for adverse effects of the domestic producers' support.

SOME POSITIVE TRENDS ARE EVIDENT IN SEVERAL SUBSECTORS OF THE AGRI-FOOD SECTOR IN JAMAICA. HOWEVER, THE SECTOR'S VULNERABILITY TO NATURAL DISASTERS, PLANT DISEASES, AND EXTERNAL PRICE SHOCKS REMAIN HIGH.

These observations lead to the following policy recommendations:

1. **Reduce the proportion of market price support as a tool of agricultural policy in the country and increase the proportion of less distortive forms of support,** such as general services and direct support. Recent trends showing the strengthening of these forms of support should be monitored and sustained in the medium term. While reduction of price support will have fiscal implications due to the short-term decline in the most protected subsectors, redirection of existing budget support to general services will enhance long-term growth in agriculture.

2. **Re-assess the balance of support given to the different commodities**, especially the disproportionate support provided to some specific subsectors, and aim to provide more diversified support to the agricultural sector.

3. **Continue the process of reforming the commodity boards** by reducing their roles in setting prices and managing trade and transforming them into institutions that provide information to their respective subsectors, set research and development agendas, facilitate market integration, and foster opportunities both nationally and internationally.

4. **Reduce the use of export licensing** and other administrative obstacles for exporters to support the development of the exporting subsectors and enhance their capacity to generate foreign currency.

5. **Consider introducing direct consumer support programs**, as Jamaican consumers are currently among the most penalized by agricultural policies in the LAC region. It should also be noted that reducing market price support through trade liberalization would benefit consumers without incurring additional budget costs, although it would impact fiscal income.

REDUCING MARKET PRICE SUPPORT THROUGH TRADE LIBERALIZATION WOULD BENEFIT CONSUMERS WITHOUT INCURRING ADDITIONAL BUDGET COSTS, ALTHOUGH IT WOULD IMPACT FISCAL INCOME.

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ANNEX 1: DOMESTIC SUPPORT POLICY PROGRAMS

TABLE 5: PROJECTS IMPLEMENTED BY MINISTRY OF AGRICULTURE & FISHERIES IN 2006-2014

NAME OF POLICY & IMPLEMENTING INSTITUTION	PURPOSE AND DESCRIPTION
AGRO PARK DEVELOPMENT PROGRAMME GOJ through the European Union/Sugar Transformation Unit Programme and the Inter-American Development Bank-funded Agriculture Competitiveness Programme	Agro Parks are areas dedicated to intensive agricultural production with complete value chain, from pre-production to production, post harvesting, and marketing. The goals of the project: • Import substitution • Increased production • Providing consistent supply of raw materials • Increased food supplies for the hotel industry Operated by AIC. Nine Agro Parks were established so far.
THE NATIONAL BANANA POLICY MOAF, Banana Board and EU through Jamaica Banana Accompanying Measures Program	(2009) As banana exports were in decline, a restructuring of Jamaica's banana industry was required in order to expand production, comply with global standards and preserve its competitiveness on both the domestic and export markets.
BANANA EXPORT EXPANSION PROGRAMME (BEEP) MOAF, Banana Board and EU through Jamaica Banana Accompanying Measures Program	A recent initiative to facilitate greater production and expand exports. Includes: upgrade of a laboratory, facilitation of exports to UK, a revolving loan to supply 50% of the material inputs required for production for the first crop and certification assistance.
FISHERY POLICY MOAF	Support to sustainable development of marine fishery and aquaculture, including research and extension services training.
THE DAIRY SECTOR REVITALIZATION PROGRAMME (DSRP) GOJ, JDDB	Operated by JDDB, established in 2009. Goal: raising the productivity levels on dairy farms in order to increase local production of milk.
EXPORT INITIATIVES PROGRAMME GOJ	Supports exports to Trinidad and Tobago, as well as global sweet potatoes and mango export expansion.
JAMAICA'S PLANT GENETIC RESOURCES FOR FOOD AND AGRICULTURE (PGRFA) PROGRAMME GOJ, FAO	Ensures Jamaica's compliance under the International Treaty on Plant Genetic Resources for Food and Agriculture.

TABLE 5: PROJECTS IMPLEMENTED BY MINISTRY OF AGRICULTURE & FISHERIES IN 2006-2014

NAME OF POLICY & IMPLEMENTING INSTITUTION	PURPOSE AND DESCRIPTION
SUGAR TRANSFORMATION UNIT (STU) AND SUPPORT TO SUGAR INDUSTRY GOJ, EU	"The Jamaica Country Strategy for the Adaptation of the Sugar Industry: 2006-2015" was introduced in order to address the impact of the EU ACP sugar regime reform. It was revised in 2009 and expanded from 2015 to 2020. EU allocated €146,578,514.63 to Jamaica over the period 2006 to 2013 under the Accompanying Measures for Sugar Protocol (AMSP). In 2007, the Sugar Transformation Unit (STU) was established within the MOAF to oversee the effective implementation of the Sugar Adaptation Strategy. The STU provided financial support in the amount of $285 million to the AIC to establish three Agro-Parks, support social and economic development in sugar dependent communities and provide training to farmers. The Cane Expansion Fund (CEF) provides concessionary loans and grants.
SMALL RUMINANT PRODUCTION PROJECT MOAF, CARDI	(2012-16) Goal: to improve food and nutrition security in the CARICOM Region through the increased production of small ruminants & processed products.
FOOD SECURITY INITIATIVES MOAF, RADA	Consist of: • National Irish Potato Programme • Onion Production Programme (grants and loans to increase production, improve productivity and sustainability) • Backyard Chicken Rearing Programme (financed through Production Incentive Programme) • Food Safety Modernization Project: to ensure that fresh produce has access to US
COFFEE AND COCOA INDUSTRY RESTRUCTURING MOAF	Divestment of the Wallenford Coffee Company (WCC) and also the Commercial Assets of the Cocoa Industry Board in order to reduce its involvement in commercial operations.
JAMAICA RURAL ECONOMY AND ECOSYSTEMS ADAPTING TO CLIMATE CHANGE (JA REEACH) PROJECT ACDI/VOCA	Goal was to improve resilience to climate change, included the renovation of an irrigation system, providing tools to cocoa farmers for improving practices.
AGRICULTURE COMPETITIVENESS PROJECT IDB	Goal: to support the development of a modern, efficient, internationally competitive and sustainable agricultural sector which will open domestic and international market access and opportunities to Jamaican products. Food quality and safety management systems, Agro-Parks development.

ANNEX 2: TRADE POLICY

TABLE 6: CUSTOMS TAX EXPENDITURES IN JAMAICA, 2010-2013

	2010		2011		2012		2013	
GCT FOR AGRICULTURAL INPUTS	224,04	0,3	232,03	0,3	206,9	0,2	26,78	0
GCT FOR BASIC FOOD	7.082,21	9	7.771,09	9,1	7.535,49	8,1	5.841,9	5,7
SCT (AD VALOREM) IMPORTS FOR AGRICULTURE AND FISHING	16,7	0,05	1,65	0	0	0	0	0
IMPORT DUTY THIRD SCHEDULE	20,94	0,11	15,13	0,08	19,6	0,09	18,89	0,08
CUSTOMS USER FEE EXPENDITURES	1,49	0,02	0,11	0	0,01	0	0	0

Source: Ministry of Finance.

TABLE 7: TARIFFS BY PRODUCT GROUPS (AS OF 2013)

PRODUCT GROUPS	FINAL BOUND DUTIES AVERAGE	MFN APPLIED DUTIES AVERAGE	MAXIMUM APPLIED TARIFF
ANIMAL PRODUCTS	100.0	27.7	100
DAIRY PRODUCTS	100.0	27.5	75
FRUIT, VEGETABLES, PLANTS	99.5	24.7	100
COFFEE, TEA	100.0	16.1	40
CEREALS & PREPARATIONS	100.0	12.9	40
OILSEEDS, FATS & OILS	96.6	16.6	40
SUGARS AND CONFECTIONERY	100.0	20.0	40
BEVERAGES & TOBACCO	100.0	29.4	40
COTTON	100.0	0.0	0
OTHER AGRICULTURAL PRODUCTS	86.8	6.7	40
FISH & FISH PRODUCTS	50.8	30.8	40

Source: WTO.

ANNEX 3: BANANA SUPPORT PROGRAMS

PROGRAM	YEARS & AMOUNTS	GOALS	ACTIONS
BANANA SUPPORT PROGRAM EUROPEAN UNION	€42.5 MN (APPROXIMATELY J$4 BN) IN 2002-2012	INCREASED COMPETITIVENESS AND SUPPORT TO SOCIAL DEVELOPMENT IN BANANA GROWING AREAS	• Technology promotion and best practice transfer (training) • Disease management (subsidies for pesticides) • Infrastructure development, including on-farm irrigation (investment fund) • Grants for socio-economic development projects in traditional banana growing communities • Provision of farm equipment and input supplies (20% of the costs paid by farmers, 12% of collected sums go to catastrophe fund) • Establishment of a catastrophe fund
THE EU BANANA ACCOMPANYING MEASURES (BAMS)	2010-2013 J$74.3 MN	ASSISTANCE TO BANANA EXPORTERS IN 10 ACP COUNTRIES (INCLUDING JAMAICA)	• Assistance with compliance with the European Retail Produce Good Agricultural Practices (EUREGAP)
THE EU BANANA ACCOMPANYING MEASURES (BAMS) EXTENSION OPERATED BY BANANA BOARD	2014-2017 €4.73 MN	IMPROVING PRODUCTIVITY OF SMALL FARMERS; STRENGTHENING MARKET INTEGRATION OF SMALL FARMERS[40]	• Conducting subsector-specific research • Providing extension services • Pest management • Transfer of technologies for drought mitigation on farms • Multiplication and distribution of seedlings of new disease-resistant and high-yielding banana and plantain varieties • Standardization and certification • Updating a database of banana and plantain producers • Administration of the Banana Industry Catastrophe Fund for weather risk management
BANANA EXPORT EXPANSION PROGRAMME (BEEP) MOAF AND THE BANANA BOARD	2015-2017	MEET THE DEMAND FOR JAMAICAN BANANAS ON GLOBAL MARKETS	• Upgrade of a tissue culture laboratory • Facilitation of exports to the UK, a revolving loan to supply 50% of the material inputs required for production of the first crop • Facilitation of necessary certifications

[40] http://thebananaboard.org/images/pdf/aboutthebeep.pdf

ANNEX 4: PSE METHODOLOGY DEFINITIONS

Producer Support Estimate (PSE): The annual monetary value of gross transfers from consumers and taxpayers to agricultural producers, measured at the farm-gate level, arising from policy measures that support agriculture, regardless of their nature, objectives or impacts on farm production or income.

Percentage PSE (PSE%): PSE as a share of gross farm receipts.

General Services Support Estimate (GSSE): the annual monetary value of gross transfers to general services provided to agricultural producers collectively (such as research, development, training, inspection, marketing and promotion), arising from policy measures that create enabling conditions for the primary agricultural sector through development of private or public services, institutions, and infrastructure, regardless of their objectives and impacts on farm production and income, or consumption of farm products. The GSSE does not include transfers to individual producers.

Consumer Support Estimate (CSE): the annual monetary value of gross transfers from (to) consumers of agricultural commodities, measured at the farm gate level, arising from policy measures that support agriculture, regardless of their nature, objectives or impacts on consumption of farm products.

Percentage CSE (CSE%): CSE as a share of consumption expenditure (measured at farm gate) net of taxpayer transfers to consumers.

Total Support Estimate (TSE): The annual monetary value of all gross transfers from taxpayers and consumers arising from policy measures that support agriculture, net of associated budgetary receipts, regardless of their objectives and impacts on farm production and income, or consumption of farm products.

Percentage TSE (TSE%): TSE as a share of GDP.

Single Commodity Transfers (SCT): The annual monetary value of gross transfers from consumers and taxpayers to agricultural producers, measured at the farm gate level, arising from policies linked to the production of a single commodity such that the producer must produce the designated commodity in order to receive the transfer.

Percentage Single Commodity Transfers (SCT%): The commodity SCT as a share of gross farm receipts for the specific commodity.[41]

Nominal Rate of Protection (NRP): The ratio of the domestic prices to reference prices, expressed as a percentage.

Effective Rate of Protection (ERP): the ratio of the value-added in domestic prices to the value-added in reference prices, expressed as a percentage.[42]

Reference price is the price that domestic producers could have received for their products in the absence of any domestic or trade policy affecting the commodity's market. Border prices of imports or exports are often used as reference prices. Another option is to use specific border prices in neighboring countries or in countries that play a major role in international trade in that commodity, or prices on securities exchanges.

Reference price and producer's price for MPS calculations must be measured at the same level of processing and at the same market. Therefore, reference prices (border prices) must be adjusted for marketing margins to make them comparable to farm-gate producer prices. The adjustment is made for the cost of processing, handling, and transportation to the market where domestically produced commodity encounters the commodity from the foreign market.

Price adjustment for imported commodity

CIF price + costs of transporting the product from the border to the internal wholesale market (T1) = price of imports at domestic market level - cost of transporting the product from the wholesale market to the farm gate (T2) - costs of processing farm product into imported product (S) = price of imports in farm gate equivalent.

[41] OECD, 2010, OECD, 2015.

[42] The methodology was described in Josling & Valdes, 2004; Valdes, Schaeffer, Roldos, & Chiara, 1995; Valdes, 2013.

Price adjustment for exported product

FOBprice - handling and transportation costs between border and domestic wholesale market (T1) - handling and transportation costs between wholesale market and the farm gate (T2) - costs of processing of farm product into exported product (S) = price of exports adjusted to the farm gate level.

Nominal Protection Rate is the simplest indicator of support, which was not among the outputs of this report, but was calculated as an intermediate step for ERP estimation for agricultural commodities and inputs.

The following formula was used to calculate ERP:

$$ERP = \frac{VA_d - VA_r}{VA_r} * 100$$

Where VA_d = value added in domestic prices, and VA_r = value added in reference prices. Value added is estimated as the difference between the value of output and costs of tradable inputs. If both VA_r and VA_d are positive, the interpretation of ERP is similar to that of NRP. If VA_r or VA_d is negative, ERP may also become negative (depending on the relative values of the VA_d and VA_r). Negative value added in domestic prices means that the agricultural production brings negative returns on inputs. If the value added in reference prices is negative, the purchased inputs without policy intervention cost more than the value of output of the domestically produced agricultural commodity in non-policy situation. Only if the VA_r is positive will the negative ERP indicate the implicit taxation of the agri-food sector resulting from the policy along the value chain. It should be noted that if both VA_r and VA_d are negative, the ERP may still be positive. This methodology assumes perfect substitution of inputs and unchanged production function between the observed and reference situation.

Budget Transfers (BTs) for calculating coefficients of support estimation can exist in the form of transfers to producers, financing of general services, or transfers to consumers. Thus, all budget transfers need to distinguish between PSE, CSE, and GSSE.

PSE categories indicate the way the policy program is implemented by indicating the base on which the transfer or subsidy is calculated, such as value of production, number of animals, input use, services provided, income, or non-commodity criteria (Table 7).

Budget transfers to fund general services have been separated from PSE and have instead been calculated as a separate indicator since 1998: **General Services Support Estimate (GSSE)** (Table 8). In 2014, the OECD changed its methodology for estimating GSSE .

TABLE 8: CLASSIFICATION OF BUDGET TRANSFERS IN PSE ACCORDING TO OECD METHODOLOGY

CATEGORIES
A. SUPPORT BASED ON COMMODITY OUTPUT
A.1. MARKET PRICE SUPPORT
A.2. PAYMENTS BASED ON OUTPUT
B. PAYMENTS BASED ON INPUT USE
B.1. VARIABLE INPUT USE
B.2. FIXED CAPITAL FORMATION
B.3. ON-FARM SERVICES
C. PAYMENTS BASED ON CURRENT A (AREA) /AN (ANIMAL NUMBER) / R (RECEIPTS) /I (INCOME), PRODUCTION REQUIRED
C.1. BASED ON CURRENT RECEIPTS/INCOME
C.2. BASED ON CURRENT AREA/ANIMAL NUMBER
D. PAYMENTS BASED ON NON-CURRENT (HISTORICAL OR FIXED) A (AREA) / AN (ANIMAL NUMBER) / R (RECEIPTS) /I (INCOME), PRODUCTION REQUIRED
E. PAYMENTS BASED ON NON-CURRENT A (AREA) /AN (ANIMAL NUMBER) / R (RECEIPTS) /I (INCOME), PRODUCTION NOT REQUIRED
E.1. VARIABLE RATES (VARY WITH RESPECT TO LEVELS OF CURRENT OUTPUT OR INPUT PRICES, OR PRODUCTION/YIELDS AND/OR AREA)
E.2. FIXED RATES
F. PAYMENTS BASED ON NON-COMMODITY CRITERIA
F.1. LONG-TERM RESOURCE RETIREMENT
F.2. SPECIFIC NON-COMMODITY OUTPUT
F.3. OTHER NON-COMMODITY CRITERIA
G. MISCELLANEOUS PAYMENTS

Source: OECD, 2010.

TABLE 9: CLASSIFICATION OF GSSE BUDGET TRANSFERS ACCORDING TO OECD METHODOLOGY

GENERAL SERVICES SUPPORT ESTIMATE (GSSE)
H. AGRICULTURAL KNOWLEDGE AND INNOVATION SYSTEM
H.1. AGRICULTURAL KNOWLEDGE GENERATION
H.2. AGRICULTURAL KNOWLEDGE TRANSFER
I. INSPECTION AND CONTROL
I.1. AGRICULTURAL PRODUCT SAFETY AND INSPECTION
I.2. PEST AND DISEASE INSPECTION AND CONTROL
I.3. INPUT CONTROL
J. DEVELOPMENT AND MAINTENANCE OF INFRASTRUCTURE
J.1. HYDROLOGICAL INFRASTRUCTURE
J.2. STORAGE, MARKETING, AND OTHER PHYSICAL INFRASTRUCTURE
J.3. INSTITUTIONAL INFRASTRUCTURE
J.4. FARM RESTRUCTURING
K. MARKETING AND PROMOTION
K.1. COLLECTIVE SCHEMES FOR PROCESSING AND MARKETING
K.2. PROMOTION OF AGRICULTURAL PRODUCTS
L. COST OF PUBLIC STOCKHOLDING
M. MISCELLANEOUS

Source: OECD, 2015.

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